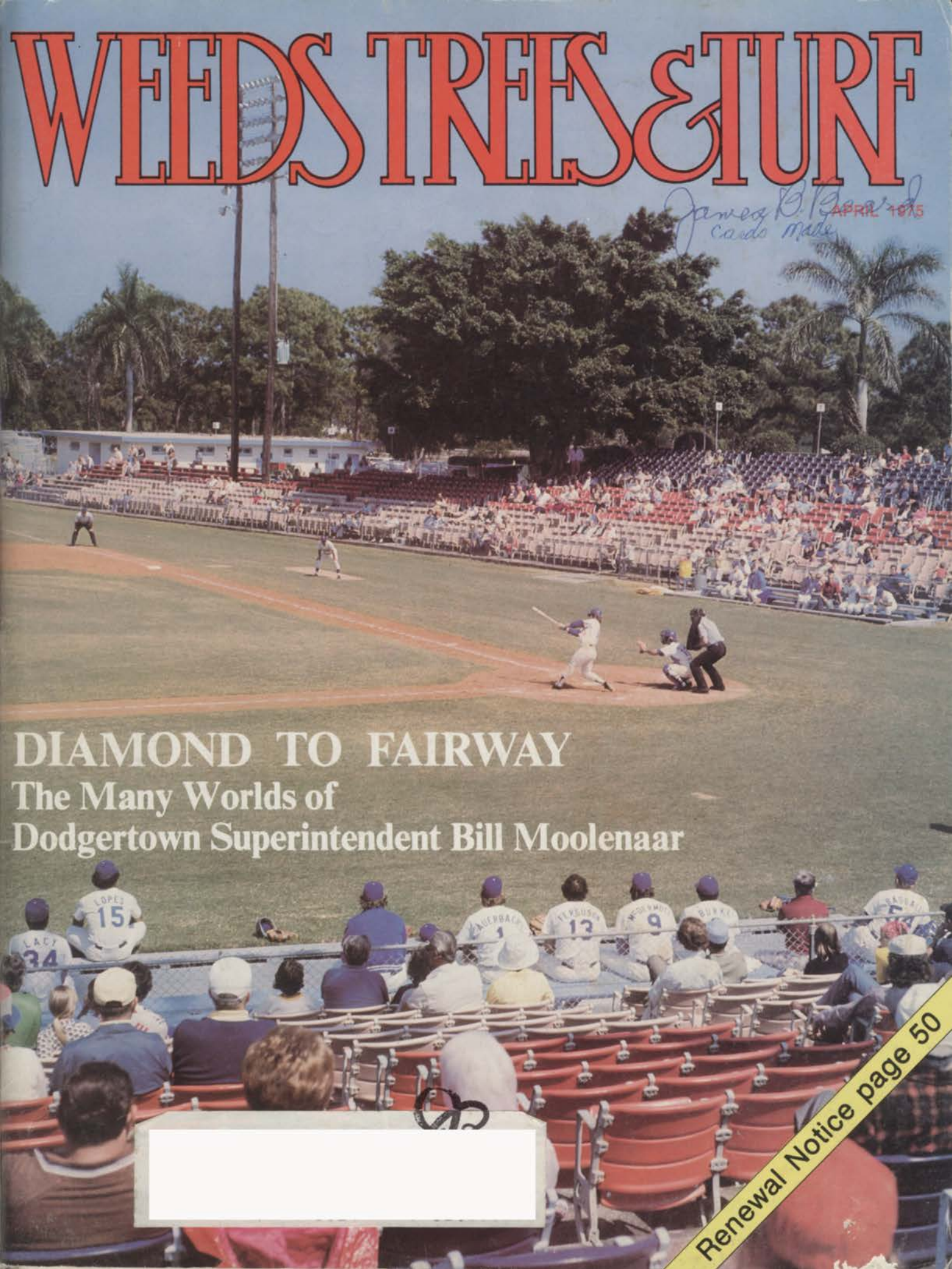
WEEDS TREES & TURF

APRIL 1975

James B. Pearce
cards made



DIAMOND TO FAIRWAY

The Many Worlds of Dodgertown Superintendent Bill Moolenaar

Renewal Notice page 50

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r More Details On Preceding Page Circle (108) On Reply Card

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Chipco Turf Kleen is a broad spectrum herbicide that controls broadleaf and surface creeping weeds with a wide margin of safety around trees and shrubs.

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WEEDS TREES & TURF®

April 1975, Vol. 14, No. 4

14 **Turf Disease Shutout** — Dodgertown superintendent Bill Moolenaar controls turf disease with a rigid chemical maintenance schedule. He supervises maintenance on two golf courses, three baseball diamonds and various other training and recreation facilities.

16 **Southern Superintendents Discuss Success, Planning** — The Southern Turfgrass Association held their annual meeting in Memphis, Tenn. Attendance figured low but spirits were high. Here's a report on what happened.

19 **Fertilizer Outlook: 1975** — Hercules' George Osburn takes a look at fertilizer supplies for the upcoming season. He predicts shortages but feels supplies sufficient to meet market demand.

1957 SPECIAL CHAIN SAW SECTION

45 **Proper Handling For Chain Saw Safety** — To those unfamiliar with chain saw operation, it may seem an easy tool to operate. It is, if you know the basic factors of chain saw operation.

46 **A Maintenance Schedule for Cost Cutting** — Depending on how you care for it, a chain saw can be either a very expensive or a relatively inexpensive tool to maintain. Dave Kirby, McCulloch Corp., outlines tips for long, reliable use.

49 **The Lightweights: Little Saws for Big Jobs** — The casual user may not need a pro-model chain saw. Here are a few of the considerations to keep in mind when buying a chain saw to fit your needs.

53 **10 Steps to Improved Cutting** — Frank McDonald, Pioneer product manager, lists 10 easy steps for properly filing and jointing the chain on your chain saw.

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THE COVER — Spring has arrived. And the National League Champion Los Angeles Dodgers play their first intersquad exhibition game of the year, providing Vero Beach, Fla., residents and tourists with their first real preview of the team in action.

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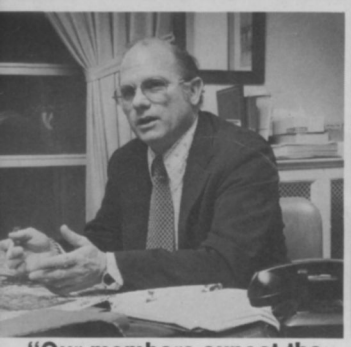

"Our members expect the course to be in top playing shape at all times. This year, I made no changes except for adding Exhalt 800 to our regular sprays. That change made a real difference. Hard-to-maintain places are in better condition; in fact, so are all greens and fairways. I'll continue using Exhalt 800. I'm convinced."

Robert DePencier, Golf Course Supt.
Westchester Country Club Rye, N.Y.

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Ronald C. Boydston, Golf Course Supt.
Rockland Country Club Sparkill, N.Y.

Your pesticide keeps working longer, when you add Exhalt 800 Sticker Extender to the solution.

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Sticker-Extender

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Crop Protection Division Kay-Fries Chemicals, Inc. Stony Point, N.Y. 10980

Editorial

Water quality management within a very few years promises to become the new opportunity for custom service operators in the green industry. We've seen custom lawn care arrive in a big way, and its growth continue.

Management of water impoundments will require custom service from pesticide applicators — all of whom are slated to be certified and/or licensed by late next year. Inasmuch as water quality management will likely continue to require some form of chemicals for effectiveness, this green industry group of custom pesticide applicators will become responsible for filling this need.

Management of water impoundments to maintain quality will be far more important than conservation, if the job is accomplished. Shortages will exist only if pollution from organic and inorganic wastes are allowed to contaminate more than the one percent of the world's water which is potable.

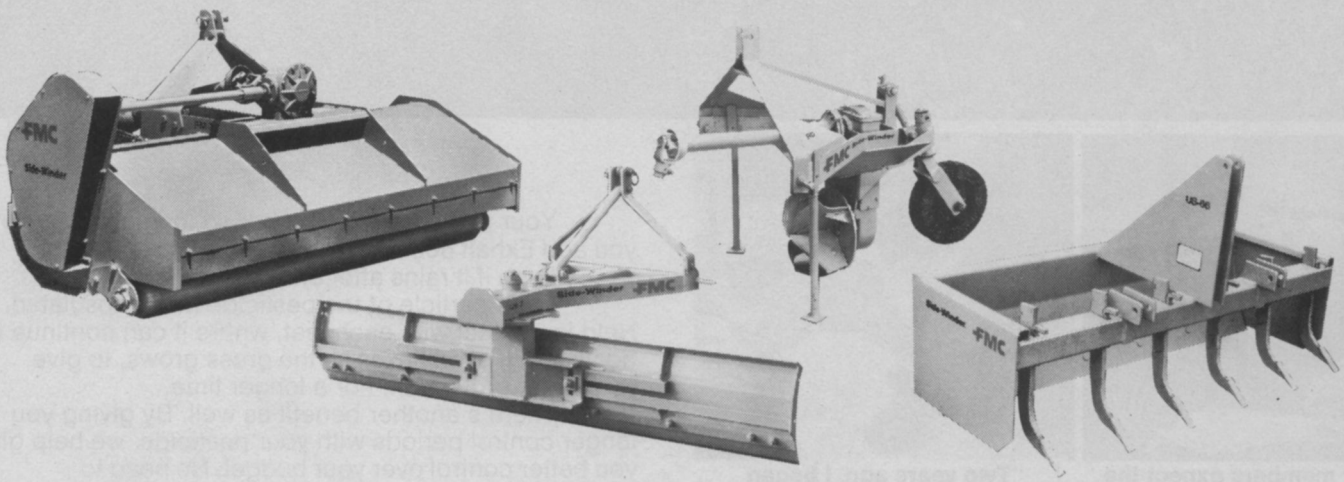
Impoundments are already important in our industry in (1) home developments, (2) golf courses, (3) parks, (4) potable supplies for municipal use, (5) irrigation, (6) industrial use and others. Not only does public consciousness of environmental quality demand clean water, but property values, recreation use, water for industry, and most important, water for human consumption, depends on careful management.

The green industry needs to face this major challenge. More attention needs to be given to water quality management in the various turfgrass conferences, weed control meetings, and others of like nature.

Today, only a few technicians and scientists serving the industry have the knowledge and experience to do this job. Only one major association, the Hyacinth Control Society for control of noxious aquatic weeds (and shortly to be renamed the Aquatic Plant Management Society on January 1, 1976) devotes almost 100% of its effort to programs aimed at keeping water clean.

Inland water impoundments, especially, are experiencing water problems and responsible people are recognizing them. We, as an industry who will inherit the custom management business, need to upgrade our capability. A.E.

Four more from the same people who build the world's toughest rotary cutter...



Side-Winder® flail mowers, blades, rotary ditchers and box scrapers come from the same people who produce the famous pneumatic-drive cutter. The same engineers and production craftsmen design and build equipment for grass and land maintenance. We measure the quality of our products by job performance and working durability. We invite you to do the same. Contact: FMC Corporation Agricultural Machinery Division Box 818 Minden, Louisiana 71055

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"Penncross Greens putt true & their even texture gives me confidence in putting."

Patrick C. Fitzsimons

Pat Fitzsimons in winning the Glen Campbell Los Angeles Open at Riviera CC, Calif., Feb. 20-23, set a new course record of 64 for a single round and tied Ben Hogan's course record for this event. Fitz previously tied the world record score of 58 on the 6,000 yard course at Salem Golf Club, Salem, Ore.

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Would they promise not to damage or weaken any growing stock they are cleared to handle?

Would they keep on working around the clock, month after month?

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The old saying that beauty is more than skin-deep is nowhere more applicable than on a golf course. Beautiful turf will not retain its beauty unless it remains healthy. In addition to normal wear and tear from golf play and stress from variable weather conditions, fungi are an ever-present health threat to turf. There's little you can do about golf play and weather, but you can control fungal diseases. An effective, economical way to combat fungal growth all year long is to use Acti-dione® Thiram and Acti-dione TGF® in a four-season disease control program. With fungi out of the way, turf has a better chance to grow strong and healthy — to resist weed infestation, to bounce back from injury and to survive adverse weather conditions. See your TUCO distributor today for complete information and assistance in planning a four-season disease control program with Acti-dione turf fungicides.

Brown patch heads summer diseases

Brown patch is a prime summer threat because it thrives in warm weather. Acti-dione Thiram, applied weekly, controls not only brown patch, but also dollar spot, melting-out, fading-out, leaf spot, rust and powdery mildew.

STOP

Use Proxol* 80SP to help prevent insect damage

TUCO Division of The Upjohn Company, Kalamazoo, Michigan 49001

C-2110

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◀ For More Details On Preceding Page Circle (133) On Reply Card

Government News·Business

EPA told an informal hearing panel on March 5, 1975, that if the EPA Administrator determined that a request raises "substantial new evidence" which could materially affect a previous suspension or cancellation order, the request could become subject to public notice procedures and formal hearings before an administrative law judge. The revised procedures were announced at the same time EPA Administrator, Russell Train, turned down a request by the State of Louisiana for emergency permission to use DDT this spring to control tobacco budworm.

New EPA statistics indicate that more than 18,000 pesticide registration "actions" were taken by the agency during the past fiscal year. These "actions" include the registration of 2,804 new products, the denial of registration applications for 3,812 other products and the acceptance of amended applications for 3,851 pesticide products.

The statistics indicate that as of June 1974, a total of 34,029 pesticides--insecticides, weed killers, disinfectants and other pest control products--were registered by EPA. The firms producing, formulating or distributing these products amounted to 3,534. The figures also show that 1,370 pesticides were cancelled by EPA during Fiscal 1974, and 33 products were suspended. Both of these actions prohibit the sale of the affected products because of adverse effects on human health or the environment.

Under the 1972 Federal pesticides law, no pesticide may be sold, distributed or delivered in the U. S. unless registered by EPA. The responsibility for this job belongs to EPA's Office of Pesticide Programs.

No changes, said OSHA boss John H. Stender, in response to EPA's proposal to lower the allowable noise standards from OSHA's proposed 90-decibel level to 85 decibels. EPA questioned the adequacy of OSHA's proposal in a December 18, 1974 notice in the Federal Register, by filing "a request for review and report" on the proposal within 90 days. Under the Noise Control Act of 1972, EPA may require another federal agency to justify its promulgation of any noise regulation that EPA deems inadequate. EPA had recommended an 85-decibel limit to be effective in three years with commitments on the part of OSHA to reduce the level further in the future. EPA declared that the proposed limit of 90 decibels would not adequately protect workers who may be especially susceptible to noise.

OSHA is seeking public comment on a document, "Criteria for a Recommended Standard on an Identification System for Occupationally Hazardous Materials," recently submitted by the National Institute for Occupational Safety and Health (NIOSH). The document would satisfy requirements of OSHA that employees be warned of toxic material hazards to which they may be exposed. Public comments concerning the paper should be submitted to the Docket Officer, OSHA, U. S. Department of Labor, Room 260-MNWA, 1726 M St. NW, Washington, D. C. 20210.

Occidental Chemical Company signed a contract with Stan M. Woogerd, president of Agrinova Corp., to develop a new line of specialty formulations. Woogerd specializes in the research and development of the techniological means for more efficient application methods and for the increased effectiveness of applied chemicals.

EACH SEASON is a winning season for Bill Moolenaar.

He does it using a proven battery of turf management methods backed up by a bull pen loaded with years of experience in handling unexpected problems.

Bill is superintendent at Dodgertown, spring training home of the L. A. Dodgers baseball club. The Dodgers boast the most complete, well-equipped spring training facility in the major leagues. The complex covers over 300 acres near Vero Beach, Florida, and includes tennis and basketball courts, swimming pool, housing for players and their families as well as the press, two golf courses, and certainly, 3 baseball diamonds.

The baseball fields are treated in exactly the same manner as the golf course fairways. Fertilizer is applied twice yearly. Constant attention and inspection head off disease and insect problems before they can create serious damage.

The golf courses are open to public membership and a portion of the complex, called Safari Pines, is devoted to private residences. Bill Moolenaar, with the help of 18 men, manages the grounds for the entire complex.

Because of the heavy traffic between January and April, Moolenaar overseeds Italian rye in his bermuda greens. "Most superintendents who overseed know that overseeded greens need special treatment," says Moolenaar, "but its just a matter of getting the work accomplished."

To get his courses in shape for overseeding, Bill starts in May, just after the players leave, with an herbicide program.

"Crowfoot and crabgrass are my biggest problems here. MSMA and 2-4-D (amine formulation) take care of them pretty well. In September, I'll follow-up with a spot application or two in trouble areas," he says.

At the spring training camp of the National League Champion Los Angeles Dodgers, superintendent Bill Moolenaar pitches a . . .

Turf Disease Shutout

A routine disease control program is followed all summer. And he sprays a preventive fungicide every two to three weeks.

In early Fall the greens are aerified and verticut to retard the bermuda growth while getting rid of any thatch problems. Also, early aerifying allows the bermuda to heal for a more uniform putting surface after seeding. "Depending on the weather, I overseed anytime between Thanksgiving and Christmas," says Moolenaar.

A week to 10 days before overseeding, he launches a special program to make sure that his course is free of disease and insects. He applies Acti-dione Thiram and Proxol 80 SP in a combination tank mix at recommended rates, "The two chemicals are compatible, so why make more than one trip?" he says. His biggest disease problems are pythium, helminthosporium and dollar spot and in the warmer periods of late summer, brown patch. Sod webworms, cutworms, army worms and at times, mole crickets are his insect threats.

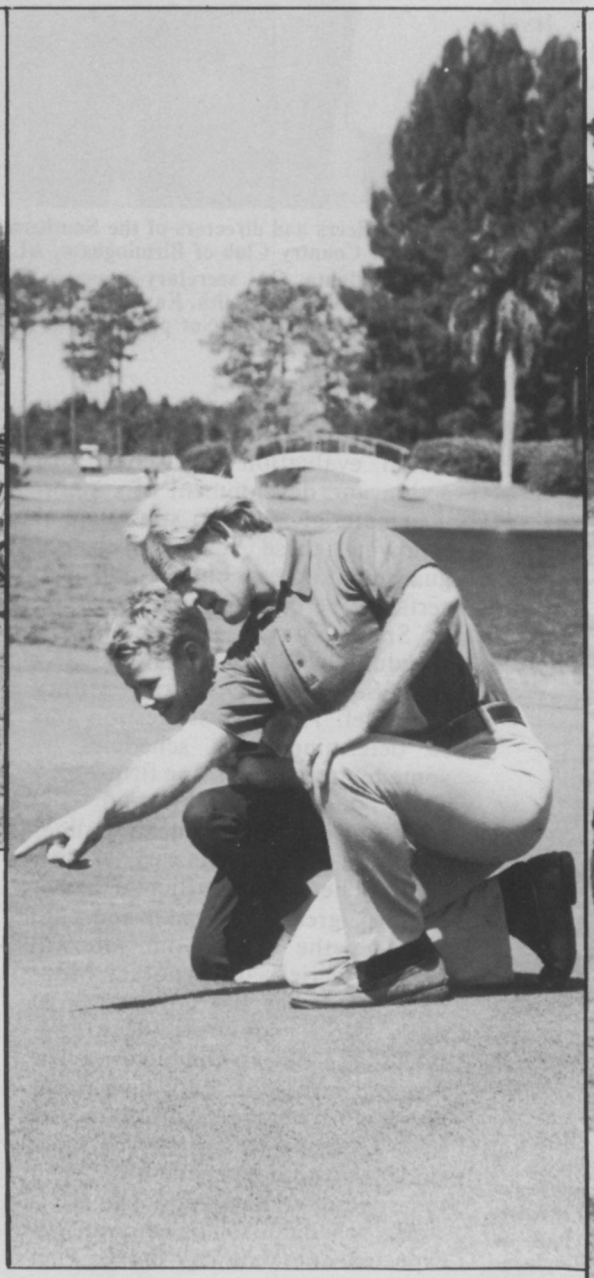
About 5 days prior to overseeding, he topdresses sterilized soil and applies a low-nitrogen high P & K fertilizer.

All greens are seeded in a 2-day period. "It's more work all at one time, but we get all the greens off to an equal start this way," says Moolenaar.

Immediately after seeding, he follows through with another fungicide-insecticide treatment to protect the newly-emerging seedling at one of its most critical periods. The Acti-dione Thiram-Proxol application is repeated again each week for the following two weeks. After overseeding is established he sprays again, followed by two more sprayings at 7 and 10 days.

"Because the insects come out at night, we like to spray in the late afternoon. That puts a fresh application out there when it's needed," he says.

(continued on page 42)



Far left: Bill Moolenaar looks for turf problem areas during a scrimmage game. **Left:** "Good technical assistance from your suppliers is essential," says Moolenaar, shown checking some application rates with TUCO plant health representative, Bill Maxwell. **Above:** If a twosome has to wait to tee off, they can frequently pass the time watching the Dodgers work out in batting cages adjacent to the golf course. **Right:** Moolenaar's children sometimes accompany him as he makes his rounds. **Far right:** Being superintendent of Dodgertown is serious business but Moolenaar often finds time to share a laugh with his crew members.

Southern Superintendents Discuss Planning, Success

LOW ATTENDANCE figures once again plagued the turfgrass industry's show season as the Southern Turfgrass Association registered less than 300 people for their recent conference and equipment exposition in Memphis, Tenn.

Close on the heels of GCSAA's New Orleans show and continued competition from budget cutbacks held attendance to the low level. GCSAA attendance was also some 440 less than their 1974 meeting.

Theme of the educational portion of the show was "Success Through Planning".

James Bridges, superintendent of Creeks Bend Golf Course, Hixson, Tenn., welcomed everyone to the meeting and expressed the increased importance of meeting present day challenges through planning. Bridges is also a state director of the association.

Educational director for GCSAA, Bill Knoop, noted a strong correlation between thinking before acting and success in undertaking any project. He listed the tried and true methods of planning and success as: identification of objective or goal, definition of all courses of action, evaluation of all courses of action and development of supportive materials. Knoop stressed that following these steps "does not guarantee success, but the odds will certainly be on your side."

1976 officers and directors of the Southern Turfgrass Assoc. from left: president, Gene Baston, Country Club of Birmingham, AL, vice president, Al Frenette, Peachtree Golf Club, Atlanta, GA, secretary-treasurer, Euel Coats, Mississippi State University, and directors Billy W. Smith, Kayo Mullen, Bill Langer, Frank Gumpert, James T. Bridges, Jr., and Lee Strebel. Not pictured Pat Ardoin, Tommie Hill and Sam Locke.

Speaking on planned work schedules was USGA Greens Section Southern Director, Monty Moncrief. His first suggestion was to determine work schedules — some tentative and some firm—on a yearly, monthly, weekly and daily basis. "Keep communication lines open and plan jobs as early as possible. The less conflict between the pro, greens chairman and club manager the easier your job will be," Moncrief said. Another Moncrief point was the importance of daily work schedule planning. "After the day is complete, review the finished jobs and plan tommorrow's schedule accordingly," he said. To make operations run more smoothly, have someone other than the superintendent know the day's work schedule so something unexpected does not halt work. Plan the work so completion of all projects can be achieved. Place employees on jobs most appealing to their particular interest. "And above all, show appreciation to employees for a job well done," Moncrief concluded.

(continued)

Over thirty regional and national exhibitors set up booths during the February show. Here the crowd takes a look at what's new in the turfgrass marketplace.

STA 1976 president, Gene Baston, presents Reg Perry with a plaque honoring him for 23 years as secretary-treasurer of the association.

It's spring.

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TURF FUNGICIDE

Start with TERSAN LSR turf fungicide on tees, fairways and greens in early spring to stop leaf spot activity before it becomes a problem.

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TERSAN LSR will also protect against rust and large brown patch before they have the opportunity to damage your turf. If stripe smut is a problem, use TERSAN 1991.

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TERSAN 1•2•3
DISEASE CONTROL PROGRAM

DUPONT

With any chemical, follow labeling instructions and warnings carefully.

For More Details Circle (111) on Reply Card

One of the newer trends in housing is the complete community development. In this area, planning is most crucial and speaking from personal experience was Bill Carson, superintendent of Sea Pines Golf Course.

Carson used colored slides to outline the step by step planning and development stages of one of the eastern seaboards largest developments. "Many of the facilities necessary to attract and maintain a satisfied community must be well planned before the first resident moves in," Carson said. "It takes more than tact to inform any of the residents that there has been a mistake in planning and the new highway is going through their backyard."

Irrigation is another area where detailed planning pays off. "One of the most important considerations in any irrigation installation is desired coverage," said Toro Irrigation's Bill Speelman. Matching the system to the area prevents burn-outs and many insect and weed control problems. A common practice, he said, is the use of fairway heads on greens. "If you decide this is the route you want to take, make certain there's adequate pressure — 80 to 98 psi — to achieve proper water break-up," he said. Incomplete break-up results in inadequate water coverage and sometimes results in turf damage. "In the long run, it adds much to player pleasure and the superintendents' well being if the irrigation job is properly constructed from the beginning," he said.

Preemergence weed control requires use of the planning process and speaking on this subject was G. Euel Coats, associate professor of weed science, Mississippi State University. "Annual bluegrass is by far the most severe grassy weed infesting southern turf areas during the late growing season through the dormant period and into the early growing season," Coats stated. "Aside from decreasing the aesthetic value of turf, probably the primary objection of annul bluegrass in southern turf is the weed problem associated with the rapid die-back in late spring." Control is usually accomplished with either benefin (Balan), bensulide (Betasan) or DCPA (Dacthal). Pronamide (Kerb) is a newer material that has shown excellent potential for either preemergence or postemergence control of the grass. "Application prior to seeding is early enough for annual bluegrass to be controlled and not interfere with transition of bermudagrass," Coats said.

Another approach used on may southern golf courses is the use of a postemergence application of a nonselective herbicide such as paraquat or cacodylic acid prior to breaking of dormancy. "This usually does an excellent job on annual bluegrass as well as those annual broadleaf weeds present," he said. □

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RE: Fertilizer The Rational Approach

By GEORGE E. OSBURN, Hercules, Inc.

PERHAPS NEVER in the history of commercial fertilizers have they enjoyed the front-page attention they have received in the past 18 months. For many years the industry was plagued with low prices and, of course, low profits. Supply was far in excess of demand. Now the situation is reversed and the cry is for more and more and more.

At the same time, the demand for energy for every other use is ever increasing. There is no doubt that we are in a "crunch" situation. Each day brings an entirely new set of conditions as regards energy availability which is reflected in finished product supply and price. I do not propose, however, to be a prophet of doom; rather I do believe that rational thinking will prevail and our priorities will be sorted out so that we can stay in business and continue to grow.

In looking at fertilizer availability, we should perhaps spend a moment in looking at the overall picture as background. The world population is increasing by about 1.4 million people per week. The present population of 3.9 billion is expected to double in the next 35 years.

We must also bear in mind that the population increase is twice as fast in the poorer nations as in the so-called rich countries. One can, therefore, project his own ideas of what the food supply problem will be and the continuing effect food production problems will have on fertilizer availability.

Now let's look at where we stand today in the United States. The fertilizer demand in 1974 exceeded supply and prices were about double the preceding year. The use of nitrogen and potash rose nearly 10 percent while phosphate requirements were unchanged. Forty-seven million tons of fertilizer were used of which about 24 million tons were mixed goods.

At the end of the fertilizer year, 1974 inventories were 28 percent below the preceding year and nitrogen material inventories amounted to only 13 days' production. Fifteen days' supply of phosphates was on hand and 22 days' supply of potash was in producers' inventories.

We cannot, therefore, expect much relief in supply in the short-term even though some production increases are scheduled for 1975. We can briefly cite reasons for shortages which occurred and which will continue to present a problem:

- Natural gas and electric power availability.
- Railcar supply.
- Excessive world demand.
- Continuing low inventories, which means:
- Continuing tight supply and, of course, high prices.

Let's look at the primary nutrients — nitrogen, phosphorous and potash — for the present and future.

Nitrogen

Ammonia is the basic building block for all chemical nitrogen fertilizers. Several announcements have been made about expanded ammonia production and it is estimated that the actual increase in ammonia supply will be about four percent for 1975. Most of this will come in the latter half of the year. In manufacturing ammonia, nitrogen from the air is combined with hydrogen from natural gas, and it requires approximately 40 thousand cubic feet of natural gas per ton of ammonia produced. Thus, the 16.5 million tons of ammonia expected to be produced in 1975 will require about three percent of the total United States use of natural gas. The ammonia industry is one of the principal users of natural gas and, unfortunately, there are no economic alternatives to gas as a feedstock. Naphtha, fuel oil and coal are alternative feedstocks but even if available, would be considerably more expensive than natural gas.

While the four percent increase in capacity is helpful, we should point out that the USDA has projected about a four percent increase in acreage planted for 1975. Assume that for most crops, other than soybeans, each additional four million acres means an additional need of one million tons of fertilizer. This amounts to an estimated 3.4 million more tons of fertilizer needed for farm crops in 1975.

Approximately 40 percent of all the nitrogen used on crops in the United States goes to corn, and that 50 percent of all crop fertilizer goes to 12 midwestern grain states. Also, we must remember that urea, ammonium nitrate, ureaforms and any other nitrogen products do not create a single additional pound of nitrogen — they only convert it and the conversion reduces the actual nitrogen by perhaps 10 percent. This same case applies to converted products of phosphoric acid.

(continued)

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Aquatic use in drainage systems keeps ditches and canals weed free.

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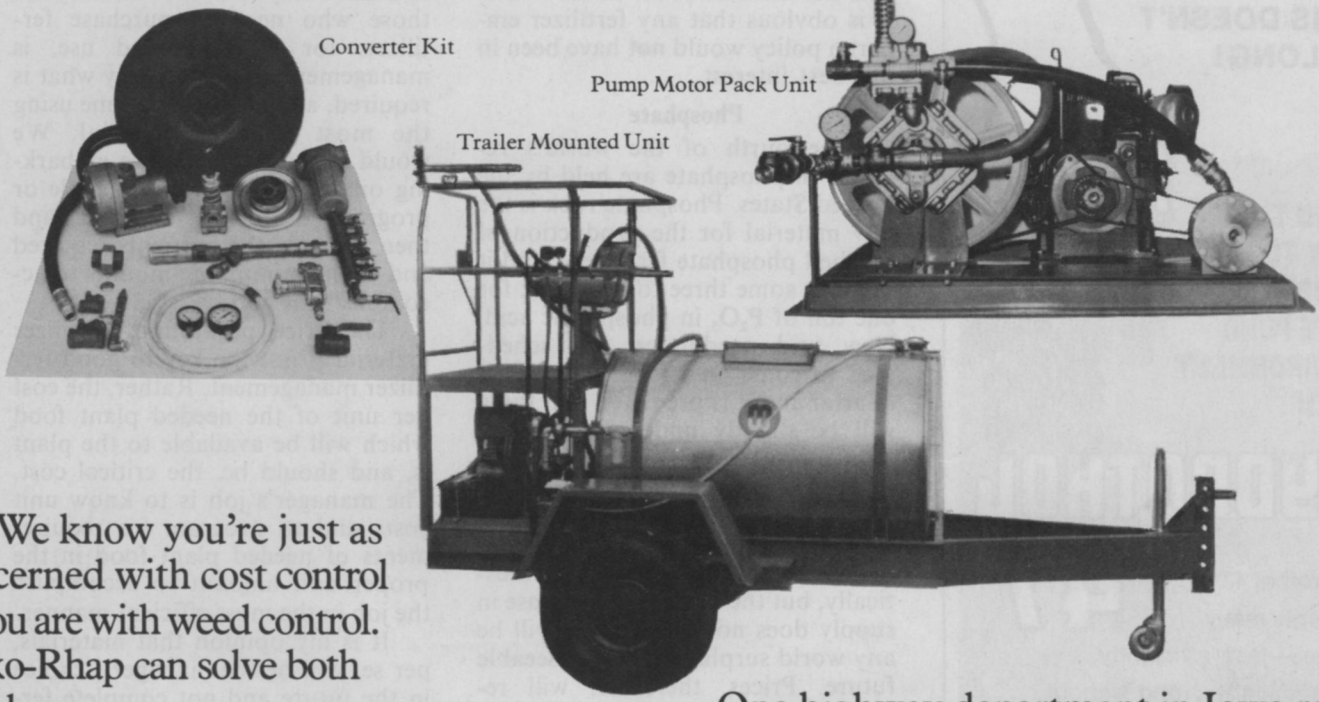

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Before leaving the nitrogen situation, we should point out that we imported about 20 percent more nitrogen in the fertilizer year 1973 to 1974, while our exports decreased by 13 percent. In finished fertilizers, we imported 10.4 million tons while exporting 6.9 million tons. This gave us a net increase of 3.5 million tons. It is obvious that any fertilizer embargo policy would not have been in our best interest.

Phosphate

One-fourth of the world's reserves in phosphate are held by the United States. Phosphate rock is the raw material for the production of finished phosphate fertilizers, and it requires some three tons of rock for one ton of P_2O_5 in phosphoric acid. New acid production was scheduled to come on stream in the first quarter and it is predicted that there will be slightly under one million tons more acid available in fiscal 1975.

Of the three nutrients, N, P and K, phosphate may be in better demand-supply balance domestically, but the 15 percent increase in supply does not mean there will be any world surplus in the foreseeable future. Prices, therefore, will remain strong, and world demand for rock and subsequently acid will continue the current situation until near the end of the decade.

Potash

Potash is the one nutrient where we must rely on our friend to the north, Canada. Seventy-five percent of the potash consumption in the United States in 1974 came from the Canadian mines and inventories in North America are reported to be at dangerously low levels. There is little increase forecast for 1975, the major reason being the divergent opinions of the Canadian and Provincial governments and the potash producers, on the amount of taxes to be levied and who shall control the marketing decisions. We, therefore, see continuing shortages and firm prices for all of the potash fertilizer materials. Sulfate of potash is in very short supply due to the above reasons, but also due to the current tight situation on sulphuric acid.

Prices, as one would expect, have continued to rise but we are perhaps seeing some leveling off at today's published levels. It is possible that there will be spot increases on individual materials, but the overall-market should be somewhat stable and rises greater than 10 percent overall are not anticipated.

With present crop price projections, fertilizer is still the farmers' best buy and no slackening in demand is really foreseen. The key for those who need to purchase fertilizer, for whatever end use, is management and using only what is required, and at the same time using the most efficient material. We would suggest that before embarking on any fertilization schedule or program, a soil test be made and then use only the nutrients required and in the minimum amounts to accomplish the job.

The price per ton of fertilizer material is not the key to good fertilizer management. Rather, the cost per unit of the needed plant food which will be available to the plant is, and should be, the critical cost. The manager's job is to know unit costs and to program his requirements of needed plant food in the proper unit amount to accomplish the job in the most efficient manner.

It is my opinion that materials, per se, will be the manager's choice in the future and not complete fertilizers when not all of the plant nutrients are required for the job at

(continued on page 26)

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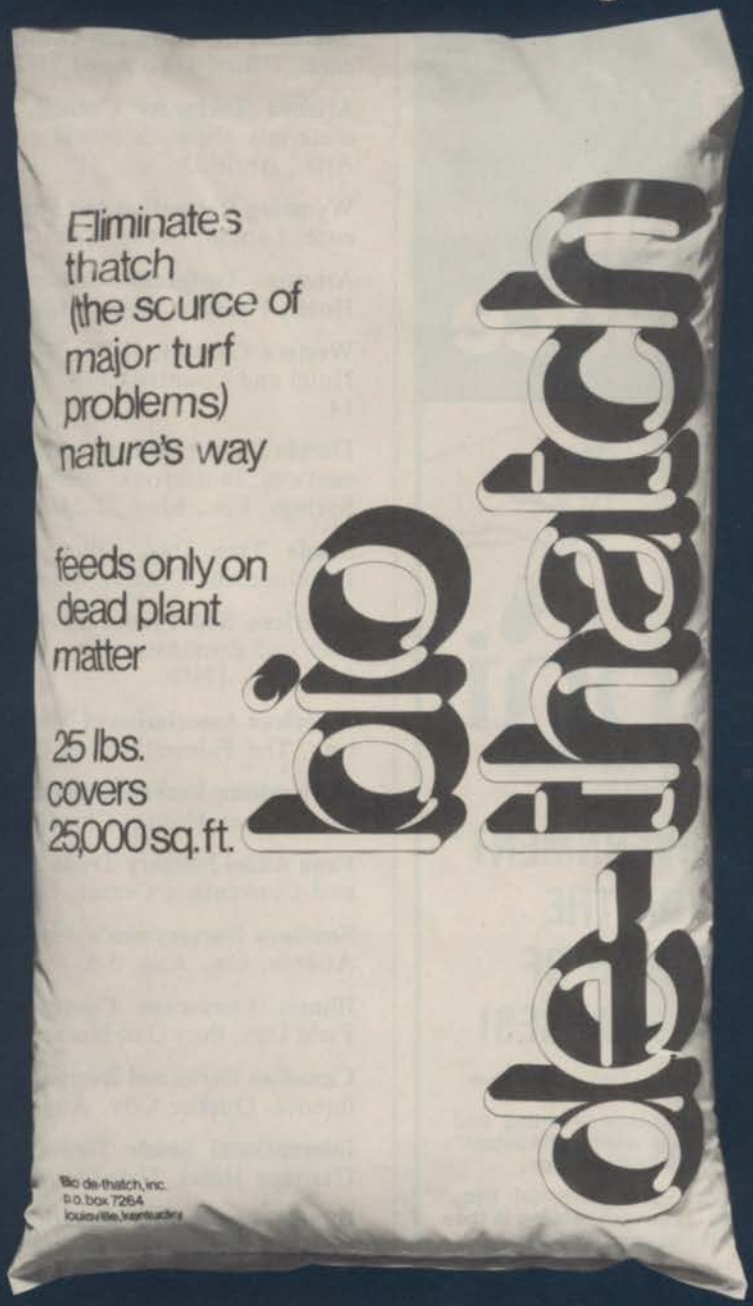

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◀ For More Details On Preceding Page Circle (141) On Reply Card

Meeting Dates

Southern California Horticulture and Turfgrass Institute, Royal Inn, Anaheim, Calif., April 16-17.

Southeastern Turfgrass Conference, 29th annual conference, Tifton, Ga., April 21-22.

Arizona Turfgrass Council, turfgrass equipment and materials show, Scottsdale Hilton Hotel, Scottsdale, Ariz., April 23.

Wyoming Recreation and Park Association, state conference, Lander, Wyo., April 25-26.

Arizona Turfgrass Conference, Camelback Sahara Hotel, Phoenix, Ariz., May 7-8.

Western Chapter, ISTC, 42nd annual meeting, Riviera Hotel and Country Club, Palm Springs, Calif., May 11-14.

Florida Nurserymen and Growers Association, 1975 convention, Innisbrook Resort and Golf Club, Tarpon Springs, Fla., May 22-24.

Shade Tree Day, Ohio Agricultural Research and Development Center, Wooster, Ohio, July 9.

American Sod Producers Association, summer convention and demonstrations, Crown Center, Kansas City, Mo., July 17-18.

American Association of Nurserymen, centennial convention, The Palmer House, Chicago, Ill., July 19-23.

Horticulture Research Institute, New Horizons Day '75, The Palmer House, Chicago, Ill., July 23.

Penn Allied Nursery Trade Show, Hershey Motor Lodge and Convention Center, Hershey, Pa., July 29-31.

Southern Nurserymen's Association, annual convention, Atlanta, Ga., Aug. 3-5.

Illinois Landscape Contractors Association, Summer Field Day, Burr Oak Nursery, Round Lake, Ill., Aug. 6.

Canadian Parks and Recreation Association, annual conference, Quebec City, Aug. 10-14.

International Shade Tree Conference, annual meeting, Heritage Hotel, Detroit, Mich., Aug. 10-14.

Illinois Turfgrass Foundation, Golf Day, Indian Lakes Country Club, Bloomingdale, Ill., Aug. 25.

Turf and Landscape Day, Ohio Agricultural Research and Development Center, Wooster, Ohio, Sept. 9.

Pacific Horticultural Trade Show, San Diego Convention and Performing Arts Center, San Diego, Calif., Sept. 13-15.

International Symposium on Environmental Monitoring, Frontier Hotel, Las Vegas, Nev., Sept. 14-19.

California Association of Nurserymen, convention, Town and Country Hotel, San Diego, Calif., Sept. 16-18.

Outdoor Pest Services Clinic, sponsored by the National Pest Control Association, Inc., Kansas City, Kan., Sept. 26-27.

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FERTILIZER *(from page 22)*

hand. Nitrogen, of course, is always needed for plant growth and many nitrogen bearing materials, ranging from completely soluble to the newest slow-release nitrogen materials, offer the manager a wide range of products to accomplish his objective at the lowest cost.

We would be remiss if we did not comment on the role of fertilizers in the non-farm or non-food production areas. All of us have read on this subject and the media continue to suggest moratoria, legislation, voluntary abstention and various other campaigns to divert United States' fertilizer from non-farm or non-food uses, and send it "overseas."

We do not propose to argue the highly emotional case, but we do think that there are some facts that you might want to know, as they affect you and your business. For example, less than four percent of the total United States fertilizer produced and consumed is used for non-farm purposes. You should know that this number includes airport runway de-icing, public parks, playground maintenance, highway shoulder stabilization and very importantly, erosion control. It does not just go to golf courses, not is it 15 percent of the total fertilizer consumed, as some would have us believe. Ed Wheeler, of the Fertilizer Institute, says, "One should never forget that not only do our green lawns and landscaping make our cities more beautiful and pleasant to live in, but in addition, growing lawns and plants remove harmful carbon dioxide and pollutants from the air and release oxygen back in return. The small amounts of fertilizer so employed contribute not just esthetic enhancement to our environment, they make a necessary functional addition to it as well."

We might also point out that many, many thousands of people are employed in all the non-farm fertilizer service areas. Workers in fertilizer plants who produce specialty fertilizers, employees of all contractors serving the turf and related industries would be immediately affected by any ban on such fertilizer use. Their efforts contribute a considerable amount to the economy which is sorely threatened as it is. Such a ban would result in mass unemployment in still another industry.

Art Edwards, publisher of WEEDS TREES and TURF, requested in his editorial in the December, 1974, issue that: "We need action committees — using the best minds in our industry — to assemble data which will quickly show the need for maintaining the green in our field." He asked for your ideas and we repeat his request.

Finally, on this matter, we believe that Dr. Robert Schery, director of the Lawn Institute, has put it succinctly when he says in his article entitled "Non-Farm Fertilizer Use" in the January, 1975, Horticulture magazine: "The appeal to forego non-farm fertilizing is an emotional reaction, rather than a reasoned plan for correcting a complicated world problem, towards the solution of which the appeal can contribute almost nothing." □

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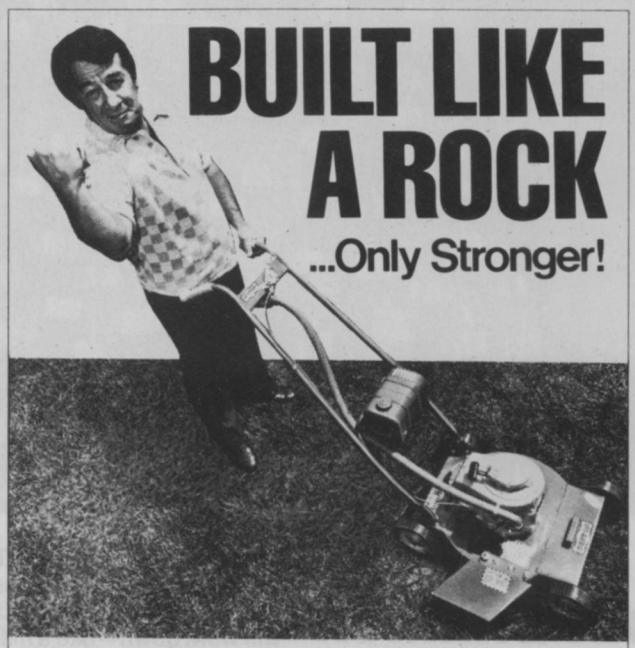

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Fusarium blight is sometimes called frog-eye spot because of the characteristic round circles that appear as early symptoms (shown above). Cool, wet weather favors the development of the fungus disease.

Homeowner Sod Problems—Fusarium Blight

By CHARLES L. COOPER*

HOMEOWNER PROBLEMS with sod have changed over the past eight years that I have been working in the Jackson, Mich., area. My area of responsibility now includes Jackson, Calhoun, Branch and Hillsdale counties. The two major centers of population are Jackson and Battle Creek, Mich. The sod grown in this area is Merion, Fylking and other bluegrass blends on organic soils.

During the first few years I worked in this area, the major homeowner sod problems were lack of fertilization, watering, thatch and powdery mildew. However, during the past three to four years, fusarium blight has become the most serious problem.

When the disease first began to show up, it was afflicting sod that had been established for four to five years. It then progressed to two or three years, and now we are finding it just one year after establishment, and in a few cases, even the same year.

This last instance may well involve sod that has been grown in the field for two years. You can drive through some subdivisions and the disease is very prevalent. Many of the people who have affected lawns have automatic watering systems or take the time to water properly.

As you know, benomyl (Benlate) is the only material registered for homeowner use. But there are very strong homeowner reactions when the cost of this treatment program is realized.

In 1973, one homeowner made three benlate applications at the rate

(continued)

*The author, an extension horticultural agent in Michigan for Jackson, Branch, Calhoun and Hillsdale Counties, presented this article at the 45th Annual Michigan Turfgrass Conference in January.

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of ½ pound per 1,000 square feet, as recommended. The grass recovered in 1973. On his 8,000 square feet of lawn, he had spent $150. This did not bother him too much until 1974, when the disease recurred just as bad as in 1973. If it was only a one-shot deal, it would not be as objectionable. But as an annual cost, homeowners rebel. Some ask, "What can I overseed with?" Others say, "I would have been better off seeding."

This kind of image given to the sod industry is not a good one. Negative reactions spread very rapidly by word of mouth when a friend asks the homeowner how the lawn is. This area is a small part of the total market area when one-half of all Michigan sod goes out of state. However, because of the nearness to the producing area, there is also a higher percentage of home lawns sodded here.

The problem is affecting our landscrapers too as the customer blames them for so-called poor sod. There are major landscapers in the area who discourage the use of sod except on slopes. They say, "We have a lot less trouble and more satisfied customers with seeded lawns."

As advisers to people on which method to obtain grass, we extension agents point out the advantages and disadvantages of both methods. With recent problems with sodded lawns and the reactions from owners, you begin to question the advisability of sodding.

In 1972 and 1973, Dr. Charles Laughlin, nematologist at Michigan State University, discovered a relationship between fusarium blight and the stunt nematodes *(Tylenchorhynchus)*. During the summer of 1974, Dr. George Bird, also a nematologist at Michigan State, and I sampled nine problem lawns — all had stunt nematodes with the fusarium blight.

To demonstrate the effectiveness of nematocides, these plots were established on homeowner lawns. The treatments were benomyl, DBCP (nemagon), nemacur and a combination of benomyl with DBCP and nemacur. They all gave effective control.

At present, benlate is the only material registered for homeowner use. Last year, the purchase price ran from $10 to $15 per pound. Nemagon 8.6 EC, nemagon 12.1 EC and fumazone 86 E are all registered for homeowner use by commercial applicators. These are applied by the drench method. However, at present time, few commercial applicators are doing homeowner work. The previously mentioned materials plus nemacur are all registered for use by the sod grower.

The cost of the nemagon and fumazone treatments are considerably less than benlate and, if it can be obtained, perhaps under $50 per 8,000 square feet of lawn — this would be less objectionable to the homeowner on an annual basis.

The lawns infected with fusarium blight have come from at least five of six different sod farms in the Jackson and Lansing, Mich., area. One landscaper who is very concerned with the problem has brought samples of turf that he has just put down on a new lawn, and two samples had stunt nematodes present.

One grower indicated it was not his problem as long as no symptoms were showing on the turf. Another grower has cooperated with Dr. Bird and has set out a test area treated with nematocides.

What can the sod grower do to reduce the possibility of selling sod infected with stunt nematodes? There are three possibilities:

- **New varieties** — When Merion bluegrass began to show susceptibility, Fylking was found to be more resistant. Now it turns out to be more susceptible to fusarium. There are some new varieties on the market that look promising, but have they been on the market long enough to be sure of resistance?
- **Crop rotation** — Certain crops could be rotated with sod that reduce the stunt nematode levels in the soil. However, most of the crops are either not suitable to the organic soils or, like onions, potatoes and lettuce, require a completely different line of machinery, storage and marketing system. Also, at present prices, they are in worse economic condition than the sod industry.
- **Fumigation** — Costs of materials for the nemacur, fumazone and nemagon treatments would run about $70 per acre. On 4,000 square yards to an acre, this would mean a cost of two to 2½ cents per square yard. Most home lawns are 8,000 square feet or less, thus fumigation would cost only about $25.

I'm recommending the third alternative. The landscaper *could* fumigate the site, but because of the lot size, he is limited in equipment and it will increase the cost to about $50 per lot.

I believe the increased cost of fumigation by the sod grower could be passed on to the homeowner because it will be a better buy for him if the sod were sold on a nematode-free basis. It would be the best approach for the total industry as well.

In summary, the fusarium/stunt nematode relationship is a serious problem and will be even more serious in the future. Now is the time to take action where it costs the least and will have the least effect to the customer in cost and bad feelings at the farm. □

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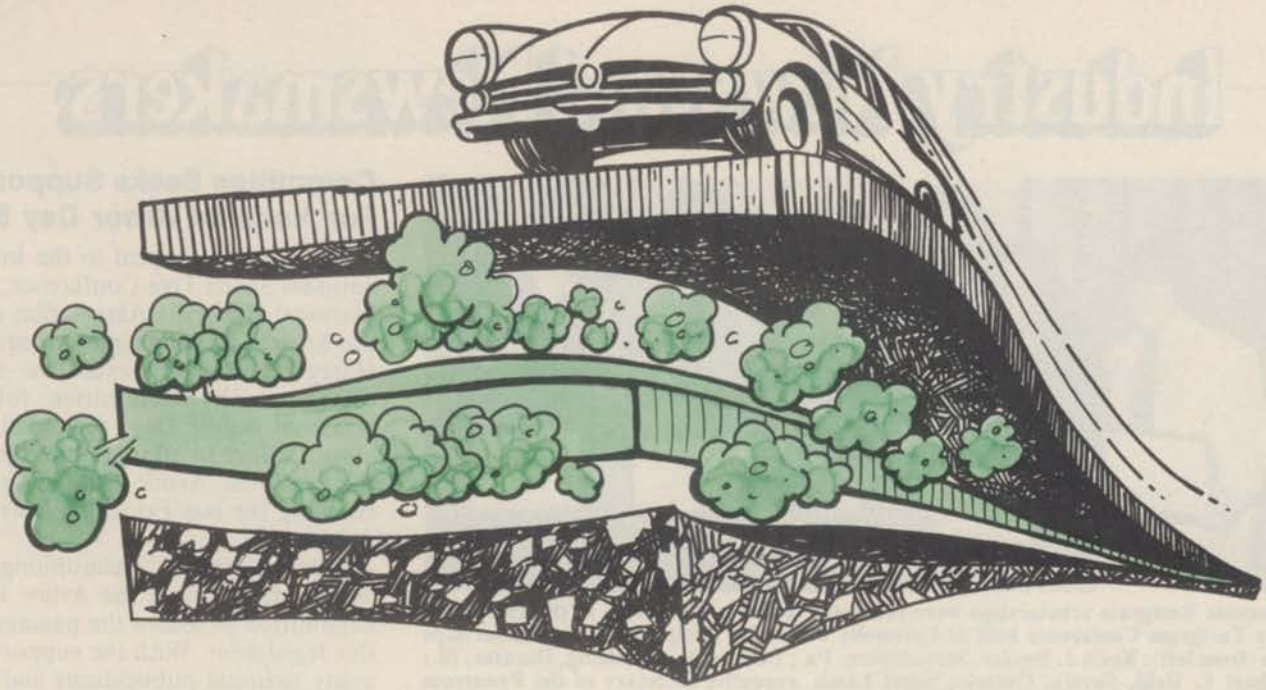

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Industry News and Newsmakers

Penncross Bentgrass scholarships were presented to five turf students at the 1975 Penn State Turfgrass Conference held at University Park, Pa. Recipients of the scholarships were (from left): Keith J. Snyder, Stroudsburg, Pa.; Douglas G. Spaulding, Decatur, Ill.; Michael L. Reid, Sarnia, Ontario; Scott Lamb, executive secretary of the Penncross Bentgrass Association, and presenter of the scholarships; William R. Roberts, Libertyville, Ill.; and Douglas A. Brede, Pittsburgh, Pa.

Drift Control Agent, Antifoam Introduced by Nalco Company

Drift. That's a dirty word to anyone who sprays chemicals, whether he is a custom applicator, a sod producer or a golf course superintendent.

Chemicals that don't make it to the intended target are simply wasted. Not only that, time and money is also wasted if respraying becomes necessary. But probably the most negative aspect of drift is the potential injury to the surrounding non-target vegetation.

While drift may never be completely obsolete, the Nalco Chemical Company of Oak Brook, Ill., is working toward that end with the promotion of a new drift control product — Nalco-Trol Drift Control Additive.

At a recent news conference for editors and broadcasters representing agricultural and non-crop vegetation markets, Nalco officials defined drift as the movement of spray particles or droplets away from the spray site before they reach the target plant. They emphasized that drift works against the applicator in his efforts to get the job done quickly and accurately. Usually, drift involves a physical movement of the droplets, but it was explained that drift can also include evaporation or vaporization.

According to John D. Ingraham, sales manager of Nalco's Agricultural Products Department, Nalco-Trol works by creating a cohesive stream of liquid, holding together some of the satellite spray particles. Droplets smaller than 150 microns are massed into larger particles.

Ingraham said laboratory research as well as extensive field applications have shown that Nalco-Trol can make a positive contribution to herbicide application.

"The ability to deliver more spray material to the target area has improved the overall application," Ingraham said. "We believe that Nalco-Trol gives the applicator, both aerial and ground, a valuable tool which will aid him in the wise and careful application of herbicides."

The Nalco-Trol anti-drift concept is unique among available methods in that it works with standard application equipment, Ingraham reported. Spray equipment that uses mechanical or bypass agitation does not have to be modified. Mix tank solutions and sprayed solution viscosities are maintained with the addition of Nalco-Trol.

Rates of the product are based

(continued on page 36)

Committee Seeks Support For National Arbor Day Bill

In a special appeal to the International Shade Tree Conference, the National Arborists Association and the Society of Municipal Arborists, Harry J. Banker, executive secretary of the Committee for a National Arbor Day, requested an all-out effort to support passage of the National Arbor Day bill proclaiming the last Friday in April as Arbor Day.

The measure is a continuing effort on the part of the Arbor Day Committee to secure the passage of this legislation. With the support of many national publications and arboricultural, horticultural and agricultural organizations, the Committee was successful in having National Arbor Day bills passed in 1970 and 1972, resulting in the President's proclaiming the last Friday in April as National Arbor Day for those years only. Passage of permanent legislation in 1975 is the goal of the National Arbor Day Committee.

University Grounds Director Cited for Managerial Skill

Roy K. Rasmussen, director of grounds at the University of Nebraska-Lincoln, was presented an award for excellence in management at a meeting of the University Association for Administrative Development.

The annual award was established in 1973 to recognize University employees who demonstrate outstanding skills in management.

Rasmussen, who has been with the University for 10 years, is responsible for the care and maintenance of the outdoor areas of both the 213-acre City Campus and 170 acres on the East Campus.

Rasmussen was cited for the speed with which he has reclaimed landscaped areas torn up during extensive campus construction, his leadership in placing women in meaningful positions within the Department, his work with disadvantaged and hard-to-employ workers and his efficiency in emergency operations such as snow removal. □

MUNICIPAL SPRAYING NEWS

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Becomes a hand-gun sprayer just by turning a valve, adjustable from fine mist to driving stream. Useful in parks, camping/recreation areas, lagoons and swamps, around buildings and storage areas. Can kill weeds in ditches hard to reach with conventional sprayers.

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Fill the 5.5-gal. tank with oil-base chemical. Press hand-gun switch and you're ready to fog an atomized, killing mist anywhere your vehicle will take you. Wipe out mosquitoes, flies and weeds. Works well even in sub-zero weather. Has 15-ft. durable, hi-pressure hose; 3/4-hp. motor, 1200-psi. pump pressure.

Write for further details on sprayers, portable heaters and washers, and central cleaning system.

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For More Details Circle (121) on Reply Card

New Nematocide, Fungicide Introduced by ProTurf Div.

George Horn, director of marketing of the ProTurf Division of O.M. Scott & Sons, has announced two new granular control products — ProTurf Nematocide and ProTurf 101V Broad Spectrum Fungicide.

The nematocide is registered for professional use on turf to control 11 parasitic nematodes, including ring, root knot and stubby root. Designed especially for the southern United States, the product can be use on bahia, bermuda, zoysia and other Southern grasses. Requiring no mixing or measuring, application of ProTurf Nematocide is said to be quick and efficient with minimum interruption of turf area use. According to Horn, treated turf should show increased vigor and improved appearance withing seven to 10 days. In most cases, he reported, the turf will be protected for six months or more.

The broad spectrum fungicide is a new contact formulated to combat a variety of fungus diseases. Horn said that 101V is registered for prevention and control of brown patch, copper spot, two strains of leaf spot, dollar spot and rust in bluegrass, bentgrass, fescues, ryegrass and dichondra. It is also said to prevent and control Alternaria leaf spot and Gleosporium in dichondra. Horn added that the product is compatible with all fertilizer and seed products a turf manager may be using at the same time.

Horn said the products have been tested in the lab and at Scott's research field stations, then proven in use at cooperating golf courses and sod farms.

Sod Producers Association Honors Beard at Meeting

More than 170 sod producers, employees and industry representatives met at the recent annual mid-winter conference of the American Sod Producers Association (ASPA) in Tucson, Ariz.

Dr. James Beard, agronomist at Michigan State University, received an honorary membership from the Association in recognition of his research and practical application of techniques in the development of the sod industry.

Speakers and topics included: ASPA Legal Counsel Bill Harding, labor relations and the sod industry; Dr. Paul Rieke, Michigan State, maximum production per fertilizer dollar; Ernie Becker, Sr., vice-president and secretary of the National Association of Home Builders, the home building industry outlook for 1975; Dr. Gordon Johnson, University of Arizona, the use of sewage affluent in sod production, and Les Willson of DuPont, aggressiveness in business and sales.

The ASPA Board of Directors met and discussed future activities of the Association. A brochure will be prepared on sod production and utilization for individual members' use in promoting sod sales.

Hyacinth Society Members Plan July Meeting In Texas

The Hyacinth Control Society, to become the Aquatic Plant Management Society in 1976, will hold its 1975 summer meeting in San Antonio, Tex., July 6 to 9. The basic theme of the 1975 meeting is "Environmental Management Under Material Shortages." Society President L. V. Guerra of the Texas Parks and Wildlife Department said that plans are underway for a six-day post-convention trip to Mexico City. □

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People on the Move

Robert A. Kenkel, appointed vice president of operations, Gravely Division, Clarke-Gravely Corp.

* * *

Stan Byers, elected president of Bunton Co., a manufacturer of commercial lawn and turf equipment.

* * *

Cassell Amend, named production and manufacturing coordinator, Agchem Division of Pennwalt Corp. **Louis Janucik, Jr.,** appointed Agchem's sales representative in the Northeast.

* * *

Kenneth F. Geiger, elected vice president, corporate development, Velsicol Chemical Corp. **Jim Bob Gibbs,** appointed industrial vegetation specialist. **Gary L. House,** appointed manager, customer relations, Agricultural Business Group of Velsicol, and will be responsible for manning the company's toll-free Banvel herbicide "Hot Line."

* * *

John Beattie, appointed vice president of operations, Irrigation and Power Equipment, Inc., a wholly-owned subsidiary of The Toro Co.

* * *

Don F. Ward, joined Chemagro Agricultural Division of Mobay Chemical Corp. as a product manager. **Jerry S. Philipp,** appointed Chemagro's new Hawaiian field representative.

* * *

Cliff Helwig and **E. E. "Joe" Bredeson,** promoted to Par Ex territorial managers for Swift Chemical Co. **Thomas H. Moore,** joined Swift as Par Ex area sales manager.

* * *

L. Brinson Lanier and **Mark Hollenbach,** joined Thompson-Hayward Chemical Co. as agricultural sales representatives.

* * *

Patricia L. Cahn, named EPA director of public affairs succeeding **Ann L. Dore** who is now with the Washington staff of Union Carbide Corp.

* * *

Woody Young, appointed territory manager for Cal-Turf, Inc. **Terry Hynes** and **Kevin Servatius,** appointed sales representatives.

* * *

John A. Drenchek and **David C. Heegard,** named technical representatives for the ProTurf Division of O. M. Scott & Sons.

* * *

Jack A. Tiethof, appointed research chemist, Minerals & Chemicals Division, Engelhard Minerals & Chemicals Corp.

* * *

P. Russell Owings, named vice president of sales for L. R. Nelson Corp. The company also announced sales management appointments: **Al Low, Jr.,** eastern; **Elmo Dowling,** southern; **Richard E. Einfeldt,** western; **Dale Brown,** midwestern; **Rex Dixon,** sales development manager for Landscape and Turf Division, midwestern and eastern regions.

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(805/963-3691)

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Avon, Conn.
(203/677-0343)

McMullen Feed Store
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WTT-4

NEWS *(from page 31)*

on 100 gallons of spray and are expressed in a range of ounces. Mechanical factors such as pressure and nozzle type are calculated into the amount of Nalco-Trol needed. In addition, applicators should practice sound spraying techniques and have a knowledge of environmental factors affecting drift.

Speaking on some of these environmental factors, C. A. Smith, manager of Specialty Chemicals for Nalco, said drift is influenced by temperature, humidity, droplet size, horizontal and vertical air movement, as well as wind speed, pressure and height of nozzles. "All of these factors must be taken into consideration to minimize drift," Smith said.

Also introduced at the news conference was another Nalco product, 2151 Pesticide Antifoam. The product was demonstrated, and it was explained that as little as one-half to two ounces of the antifoam in a spray tank would reduce foaming caused by pesticides interacting with water. The product is said to not interfere with the action of surfactants or other spray adjuvants. Its primary advantage is reduced foaming during mixing, thus permitting the applicator to completely fill his spray tank.

Pledging Nalco's commitment to solving water-related problems of the agricultural industry, R. W. Graff, group vice president of Nalco Chemical Company, related some of Nalco's background to the group.

According to Graff, finding an industry's needs and filling them through water technology has accounted for a large segment of the company's growth.

Regarding the introduction of the two water-related chemicals for pesticides applicators, Graff said, "Typically, we will penetrate a new market with our products and as we become familiar with the market and its problems, we try to expand our service to it."

"Nalco is in the business of selling specialized technology," Graff said. "The chemical products we manufacture are the tools we use to provide the technology to industry. Customers buy the results produced by the proper application of our products rather than the chemical composition of our products."

Right, top: Drift, a real problem in the application of any pesticide, is influenced by many factors. Bottom: The addition of Nalco-Trol to the spray solution noticeably reduces the number of fines (small drift droplets).

Holding an informal conference outside Stewart Center at Purdue University are the newly elected officers of the Midwest Regional Turf Foundation. From left are: John Spodnik, superintendent, Westfield Country Club, Westfield Center, Ohio, president; Danny Quast, Milwaukee Country Club, Milwaukee, Wis., vice-president; and Dr. William H. Daniel, Purdue turf specialist, re-elected executive secretary. More than 650 attended the conference.

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Toro's Mobile Turf Service Expands By Five New Units

The Toro Company's mobile service program for turf products — vans fitted with spare parts and diagnostic and repair equipment and staffed with trained technicians — will be extended this year to reach more than 35 percent of all Toro turf products in use in the U.S.

James Maloney, national service manager for Toro's Turf Products Group, said the additional units will all be in service before the end of March. They will be operated by Toro distributors in Florida, Wisconsin, Connecticut, Massachusetts, Rhode Island and Louisiana.

The new units are scheduled to go to these Toro distributors:

- Hector Turf & Garden, Inc., Miami, covering south Florida.
- Gulf Shore Turf Supply, Inc., Pensacola, for the northern Gulf Coast area, Louisiana and parts of Mississippi and Alabama.
- The Clapper Company, West Newton, Mass. This will be Clapper's second unit for expanded coverage in eastern Massachusetts (including Cape Cod), New Hampshire and Rhode Island.
- Reinders Brothers, Inc., Elm Grove, Wis., for central and eastern Wisconsin and Upper Michigan.
- Turf Products Corp., South Windsor, Conn., for most of Connecticut.

Units of the "Red Wagon Fleet" are already operating in the following areas in addition to the Clapper program in Massachusetts: southern California; north, central and western New York; greater Chicago; central Tennessee, Kentucky and parts of southern Indiana and Illinois; the metropolitan areas of Baltimore and Washington, D.C.; and the Tampa-St. Petersburg region of the Florida Gulf Coast.

The mobile units, developed to help eliminate costly downtime for turf maintenance equipment, provide emergency as well as scheduled service. They are equipped to provide factory parts replacement, reel and bedknife grinding and lapping, and repairs to engines, hydraulic systems and transmissions for mowers, seeders, sand rakes, and other turf equipment.

The units are operated by mobile service specialists who have graduated from an intensive training program at Toro headquarters in Minneapolis, Minn. The operators are required to take refresher courses at Toro's new turf products training school, which recently opened in the Minneapolis suburb of Eden Prairie, Minn.

Consulting Arborists Society Convened In St. Petersburg

The American Society of Consulting Arborists (ASCA), recently met in St. Petersburg Beach, Fla., and presented papers on tree evaluations, tree care and the liability of its members to possible suits from poor judgment or malpractice.

The past year's work of the Evaluation Committee with the Internal Revenue Service (IRS) and the Homeowners Division of the Insurance Services Office appears to

(continued)

"We found the BOWIE HYDRO-MULCHER ideal for erosion control and establishment of new turf on the difficult terrain we have here at Sun Valley."

Kenny Zimmerman • Director of Golf and Grounds • Sun Valley, Idaho

Kenny Zimmerman, Director of Golf and Grounds, Sun Valley Company, Inc., is responsible for the summer maintenance of Bald Mountain's ski slopes, 40 acres of hotel grounds and 105 acres of golf course. He needed a seeding unit that would give quick growing results to prevent soil erosion and yet be completely adaptable to the rugged terrain. He found his answer in the Bowie Hydro-Mulcher.

Whatever your seeding problems, Bowie Hydro-Mulcher has the answer. Get the kind of ground cover you want and stop erosion fast. Ideal for landscaping, greens, lawns, roadsides, steep slopes and everywhere. The Bowie Hydro-Mulcher plants, seeds, sprigs, fertilizes, waters, sprays and mulches all in one easy operation. Get the facts and you'll get Bowie Hydro-Mulcher!

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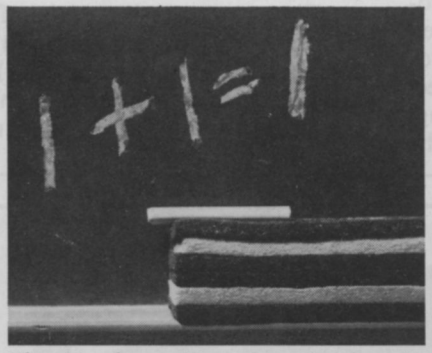
Northrup King introduces a new Kentucky Bluegrass concept:

Aquila/Parade. working as one perfect blend



The Northrup King formula for the nearly perfect Kentucky Bluegrass: 1 + 1 = 1. That's two superbly compatible bluegrasses—Aquila and Parade—working as one to create an outstanding blend component.

For a long time, turf researchers have been looking for the "perfect" Kentucky Bluegrass. They haven't found it. They've come up with some excellent varieties but not that one perfect cultivar.

Northrup King has been seeking perfection, too. And, taking a different approach, we think we've come very close to it.

Perfection, a team concept.

Since all known grasses have some sort of weakness, why not select a *team* of two grasses—with each member of the team possessing compensating strengths—and blend them in a way that's practical for use by turf professionals? This is precisely the approach Northrup King has taken.

For ten years, our researchers have sought two superior and superbly compatible Kentucky Bluegrasses to form a high-performance, low-maintenance "blend-within-a-blend". In Aquila and Parade, we've found the pair we've been after. Let's look at these two grasses, first as individuals and then as the Northrup King team of Aquila/Parade.

Aquila for persistence.

Bluegrass turf that's been established for three to five years tends to require significantly more maintenance in order to keep it dense and healthy. Aquila Kentucky Bluegrass provides a striking exception to this fact of turf life.

Once established, Aquila holds its density and color and maintains a healthy weed-resistant stand for longer than five years, even under low or moderate nitrogen fertilization. It also requires less moisture to maintain its color and shows tolerance to moderate drought conditions. It has a medium leaf width and attractive dark green color for textural and esthetic compatibility with a wide range of turfgrasses. Aquila is, on its own merits, a remarkable Kentucky Bluegrass. And we've teamed it with another:

Parade for durability.

The particular strength of Parade Kentucky Bluegrass is that it develops a tough sod fast. It withstands traffic better than many bluegrasses and can recover quickly from injury, making Parade excellent for athletic fields, golf courses, fairways and other high-traffic areas. With its pleasant dark green color and moderately broad leaf width, it's compatible with many turfgrasses. In combination with Aquila, it forms a nearly perfect blend component.

Aquila/Parade: low maintenance, high performance.

Together, Aquila and Parade give you a bluegrass component with more advantages than any single cultivar we've ever seen or heard about.

The Aquila/Parade team requires moderate amounts of fertilization, water and general care—factors that should help your maintenance budget considerably. Yet, in concert with other grasses that meet your requirements, Aquila/Parade will provide a uniformly attractive turf that establishes early and lasts straight through into fall. This blend component will also stand up well under traffic and give you good disease protection.

Aquila/Parade is ready. Now how do you use it?

Northrup King is committed to the blend concept, as are many turf experts today. Our experience convinces us that a good com-

Two bluegrasses to form a nearly component.

bination of grasses will give the best performance. So we look upon Aquila/Parade as a component to be blended with rye, fescues, other bluegrasses and/or whatever your particular conditions warrant. And, we'll gladly help you formulate the proper blend.

If you'll fill out the form below, we'll give you our professional recommendation as to the best blend, using Aquila/Parade as a component. We hope you'll take us up on this offer, because we think the Aquila/Parade team is the most important Kentucky Bluegrass concept to date—as close to perfection as anybody's been able to get.

AQUILA PARADE
KENTUCKY BLUEGRASSES

Northrup King will recommend a blend, using Aquila/Parade, customized to your specific needs.

Just fill out this form and send it to Aquila/Parade, Northrup King & Co., 1500 Jackson St. N.E., Minneapolis, MN 55413.

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Address:_____ City:_____ State:_____ Zip:_____

For: ☐ New turf ☐ Interseeding established turf ☐ Renovating old turf

Use: ☐ Prestige turf ☐ Utility turf ☐ Athletic or heavily used turf ☐ Background turf

☐ Other_____

Area to be seeded:_____ Approximate planting date:_____

Soil type: ☐ Sandy ☐ Loamy ☐ Clay ☐ Peat Soil condition: ☐ Droughty ☐ OK ☐ Wet

Fertility Level:_____ ☐ pH ☐ Acid ☐ Neutral ☐ Alkaline

Topography: ☐ Steep ☐ Rolling ☐ Level Light: ☐ Sunny ☐ Partial shade ☐ Heavy shade

Disease and insect problems encountered:_____

_____

Intended management: ☐ Intensive ☐ Moderate ☐ Low

☐ Irrigated ☐ Non-irrigated

Mowing height:_____ Frequency:_____

Fertilizer program:_____

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NEWS *(continued)*

offer promising results in the near future. The Committee reported that insurance claims on damaged trees may soon be raised from the present $250 per tree to $500 for the common homeowner's policy. The work of ASCA members L. C. Chadwick, F. R. Micha, R. Gustin and V. Curtis on the Evaluation Committee indicates that IRS may give homeowners a better break for casualty losses on trees.

From the University of Florida, Dr. Williard Witte brought ASCA members up to date on fertilizing practices for shade trees and Professor Charles Anderson gave members the guidelines for evaluations on citrus and pecan orchards.

The International President of the American Society of Appraisers (ASA) George Sinclair and Executive Vice President Dexter MacBride worked with ASCA members in possible ways of setting up a new category for ASA to approve the ASCA members as senior members of their Society.

At the final business meeting, the following ASCA officers were elected for the coming year: O. J. Andersen, Texas, president; F. Earle Martin, Ontario, president-elect; William P. Lanphear, Ohio, vice president; and F. Lewis Dinsmore, Missouri, secretary-treasurer. Directors for the coming year will be Walter J. Barrows, California; Nat Dunn, Tennessee; Arnold Webster, Iowa; Wilfrid Wheeler, Massachusetts; and W. Roland Shannon, Pennsylvania. Spencer H. Davis, Jr. of Rutgers University in New Jersey was reappointed as executive director. □

O. J. Andersen (left) receives the gavel from the outgoing ASCA president, W. Roland Shannon. The gavel and block are from the Joyce Kilmer Oak which was on the campus of Rutgers University in New Brunswick, N.J.

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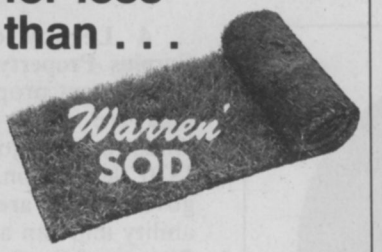

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Land and Water Conservation Fund: The Bureau also makes matching grants to states and, through them, to municipalities for public recreation areas including golf courses. To qualify, a state must develop a comprehensive statewide outdoor recreation plan and update it regularly.

Farmers Home Administration Loan Program: To develop facilities for use in rural areas, the Administration is authorized to make loans to communities unable to raise funds from commercial sources. Applications can be made at county offices of the Administration.

For a copy of a list of federal assistance programs related to outdoor recreation, write U.S. Government Printing Office, Superintendent of Documents, Washington, D.C. 20402. Interested communities can obtain a list of golf course architects by writing: American Society of Golf Course Architects, 221 N. LaSalle St., Chicago, Ill. 60601.

SHUTOUT *(from page 15)*

After the greens become established, Moolenaar slacks off only slightly with his fertilizer and spray program. All through the winter months, the greens are sprayed every 10 days to 2 weeks on a routine basis. They are fertilized every 2 weeks for a more consistent fertility level. Heavy applications at less frequent intervals would be leached out through the porous soil by heavy rains.

Because of the extreme heat on certain days, he waters 3 to 4 times each day but for only a short period of time. "This keeps the greens cool and gets the seed off to a good start," he states.

Normally, Moolenaar tries to water the greens in the morning while covering the fairways at night.

Getting his greens off to a good start has rewarded him with a long, healthy stand throughout the spring. "We had rye here last year until May, although it was beginning to thin out a bit in April," he says.

"Mr. O'Malley (Walter O'Malley, owner of the L. A. Dodgers) is an avid golfer as well as a baseball fan," says Moolenaar. "He encourages all of the players to get out on the courses."

"In fact, the Dodgers use the courses to build good community relations with the people of Vero Beach. Each year they host a tournament where the Safari Pines members and the Dodgers get together. Each foursome includes a team member. The community really supports the team, too," he says.

After the baseball players leave in April, Moolenaar takes a breather — but it's a short one. He has to get the complex in shape for the arrival of the New Orleans Saints football team in mid-July. Last year was the first year that The Saints leased the facility for summer camp-but he looks forward to having them back on a regular basis.

"Their cleats aerify the outfield for me," he says. □

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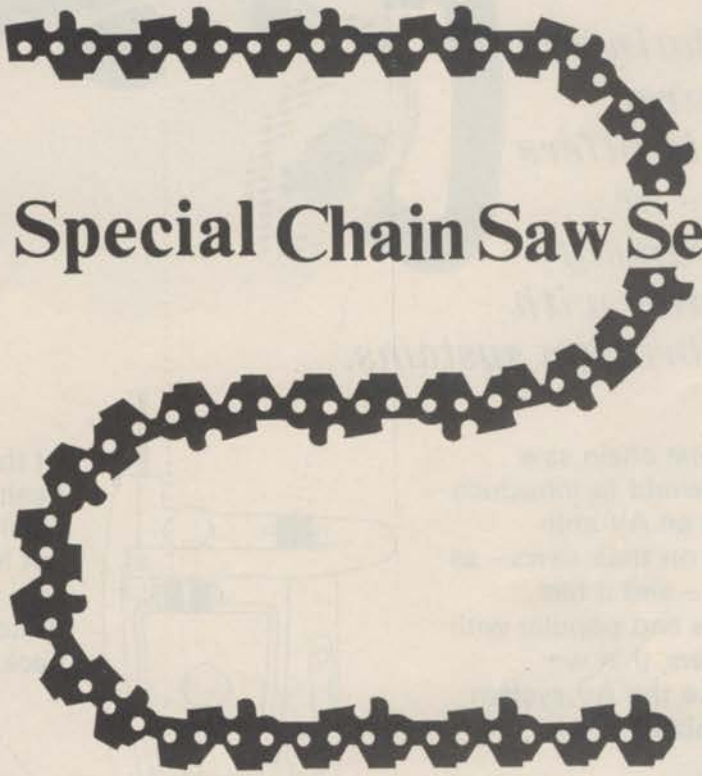

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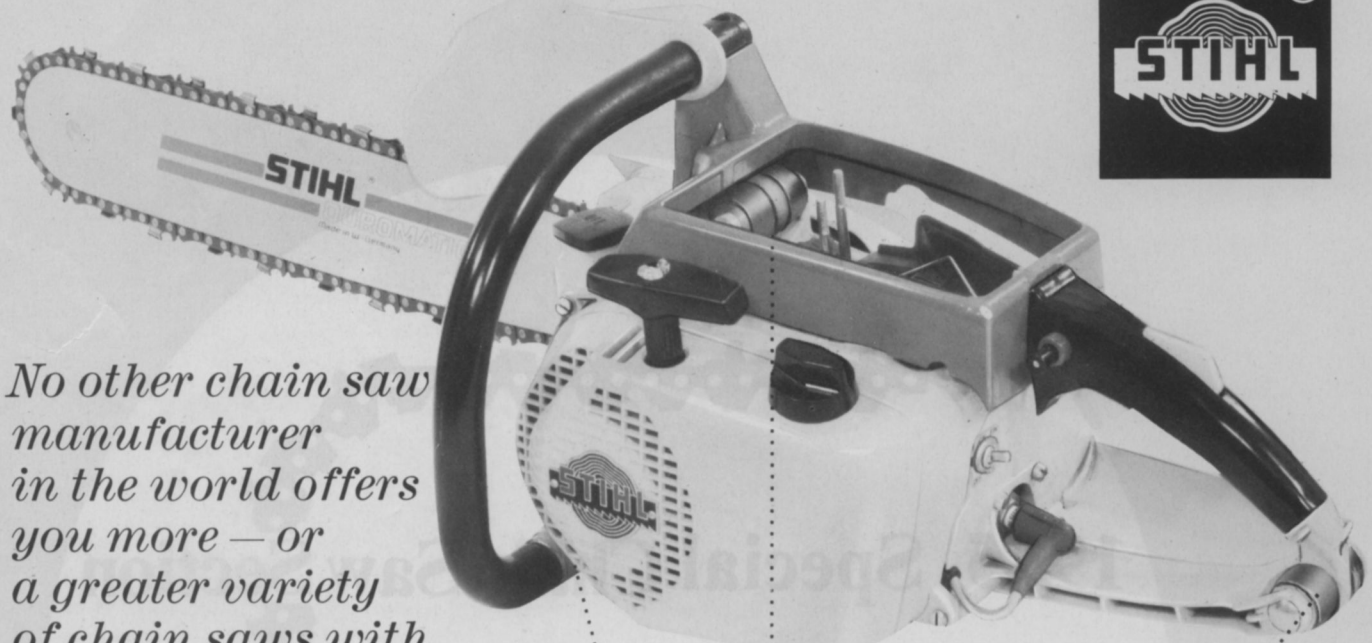

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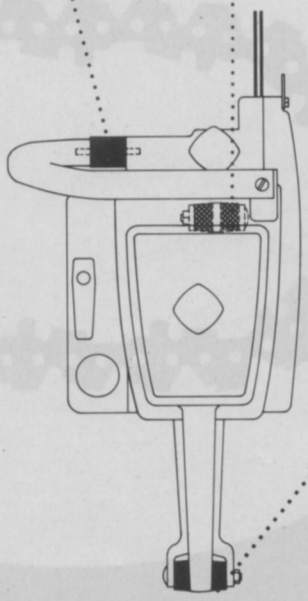

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Proper Handling For Chain Saw Safety

By BLAKE STRETTON
Vice President, Stihl American, Inc.

IN THE HANDS of an experienced, capable operator a smooth running chain saw is a high production harvesting tool. It can be a pleasure to watch a skillful operator using a chain saw effortlessly as if it were a part of himself. Some of these men are "artists" who never appear to waste a single movement and are capable, productive and safe chain saw operators. This requires experience, alertness, concentration and, above all, knowledge. Knowledge in the case of safety refers to understanding the potential hazards and the limitations of the operator himself and his chain saw.

What Causes Accidents?

Three basic factors must be considered in examining possible chain saw related accidents: the environment, the operator and the machine. Environmental factors include terrain, ground cover (understory), timber type and density and, of course, the weather. Operator factors involve training, experience and skill to recognize unsafe acts or conditions. Alertness and attitude are also important, plus attention to such details as footing, clothing and personal protective gear. But the major cause of accidents is fatigue.

Machine factors involve selecting the right size and type of chain saw and cutting attachment, in addition to proper maintenance. Weight and balance are important for safety, as are handling characteristics. Noise, smoke and vibration contribute to operator fatigue. Ease of maintenance, elimination of fire hazards and availability of special protective safety devices also should be considered.

One of the less obvious environmental factors is ground cover. Thick brush, heavy blowdown and soft or loose rocky ground certainly affect footing. Since man is a two-legged animal, his own balance is vital, especially when he has a chain saw in his hands! The timber type and density can affect his cutting technique and present varying degrees of hazard. Rain, snow, ice or wind can double the hazard since they can affect mobility, footing and the operator's grip on the saw. Frozen wood reacts to cutting and splitting quite differently from wet or green timber. The weather affects the operator's mental attitude as well (who can possibly feel good when every branch you touch with your hardhat pours half a cup of icy rain water down your neck!)

Training, Experience and Supervision

Many progressive companies engaged in wood harvesting have initiated training courses for their chain saw operators. Most chain saw companies are usually willing to provide maintenance and operating instruction, and a few provide some form of operator safety training. Many of the timber companies who have such training programs can also point to their safety records with a great deal of pride.

Experience cannot be acquired merely by instruction, but good supervision is important. Supervisory staff should be quick to point out any unsafe acts that they observe saw operators performing, and to help the operators recognize potential cutting hazards on the job.

An operator's personal health can also affect his mental attitude and alertness. No responsible supervisor will allow a man who is "not really feeling well" to operate a chain saw, or they are both asking for trouble.

No supervisor should allow a chain saw operator on the job without proper personal protective gear and proper footwear or clothing. This includes a hardhat, with or without screen visor. Goggles are not always the best since they fog up, get covered with fine saw or bark dust, and can limit the operator's peripheral vision range. Good fitting boots with steel toe caps are needed, and they must be in good repair.

Durable, properly fitted clothes are also important to safe operation in the woods (too snug can affect mobility and too loose can catch on brush or tangle with the saw). Hearing protection should also be considered, depending on the brand or model of saw being used. Fatigue is one of the biggest factors contributing not only to chain saw mishaps but all industrial accidents.

Fatigue and Handling Ease

Many characteristics of the chain saw itself can contribute to fatigue. These include vibration, noise and exhaust smoke, as well as balance, handling and control of the saw. Chain saws vary greatly in such areas as design, construction, power output, balance, handling and reliability. But let's talk about the machine factors: To help in selection of the right tool for the job and to provide some guidelines for the selection of a safer tool, here is a "checklist" of design parameters that apply to any chain saw used in commercial cutting.

Weight and Power

Low weight is useless if the unit is so flimsy that it lacks durability and reliability, or has limited fuel and chain oil capacity. Don't be misled by "dry weight — less bar and chain." Some saws run considerably longer on the same quanti-

(continued on page 50)

Upper left: Sawdust and other debris allowed to build up under sprocket housing can cause improper alignment of the guide bar, leading to poor cutting performance. **Left:** Proper fuel preparation is one of the most important aspects of chain saw maintenance. McCulloch saws operate on a 40:1 fuel/oil mixture. **Above:** Instructions for carburetor adjustment, if necessary, are contained in the owners manual. Following procedures can help the operator obtain maximum performance and reliability.

A Maintenance Schedule for Cost Cutting

By DAVE KIRBY, McCulloch Corporation

DEPENDING on how you care for it, a chain saw can be either very expensive or relatively inexpensive to maintain.

Unless cutter teeth are properly sharpened and lubricated, the chain, bar, and engine will be subjected to premature wear, resulting in rough, slow cutting.

Following are tips for long, reliable use:

1. Keep the chain sharp. A properly sharpened chain will feed itself into the wood. If you must force the chain saw or have difficulty making a straight cut, immediately resharpen the cutters and/or lower the depth gauges.

2. Keep the chain fitting properly. When the engine is stopped, the chain should not hang down below the bar. It should be as snug as possible to the bar and still be loose enough to be easily pulled along with a gloved hand.

3. Rotate your cutter bar. Because most wood cutting is done with the bottom side of the bar, turn it over every four to six hours of cutting to avoid excessive wear, which can cause chain damage.

4. Lubricate chain adequately. This may be the most important single maintenance item for your chain saw. Skimping on chain oil will increase maintenance and repair costs.

On saws with only manual type oilers, a full stroke should be made every 10 to 15 seconds while cutting. Automatic chain oilers will deliver adequate oil except in very dirty, dry wood or while boring with the end of the bar. In these cases, the manual oiler should be used.

A good practice is to check the chain oil reservoir each time fuel is added. Under normal conditions a reservoir of oil should be used for each tank of fuel.

5. Use proper and recommended oil in the fuel mixture. When a two-cycle engine is operating at 7,000 to 8,000 r.p.m., there is a little margin for error in the amount of lubrication provided by the fuel.

Chain saw cylinder temperatures are as much as 200 degrees higher than those of other engines. Oil must be able to withstand the higher temperatures without breaking down.

A chain saw user should not attempt to save maintenance dollars by using the same type of oil for his chain saw that he uses for his car, lawnmower, truck, or other equipment.

Here is a checklist of additional saw maintenance procedures:

- Remove and clean air filter regularly.
- Clean the external engine and cylinder fins regularly.
- Check and tighten fasteners every day the saw is in use.
- Ask for use and maintenance training from your chain saw dealer.

Even more important than using proper maintenance procedures is the observance of safe handling practices — especially by the first time or infrequent chain saw user.

Following are chain saw handling tips compiled from McCulloch Corporation's booklet, "Chain Saw Operation," available at McCulloch dealers or directly from the company.

1. Starting. Place the saw on the ground or other firm surface before starting. Make sure the chain and bar do not touch anything. Grasp the top handle firmly and pull quickly and evenly on the starter cord. After starting, guide the starter cord back onto the take-up reel. Do not let go and allow it to snap back.

2. Cutting. Always maintain control with both hands and avoid making cuts above shoulder height. Never cut a limb or other wood directly overhead. Stay alert; the sound of a chain saw engine can drown out warning voices or audible signals. Cut as close as possible to the base of the guide bar; attempting to cut with the tip of the bar can cause "kickback."

3. Between cuts. Stop the engine whenever doubtful about safety or cutting performance and when moving between cuts. Check the wood carefully for nails, wire or other metal. Have a second person within calling distance whenever working with a chain saw.

4. Felling. Many factors determine safe practice in cutting down a tree, including the tree's size and condition, its lean, other trees in the area, terrain and wind conditions.

First, determine a retreat path to follow when the tree begins to fall. Make an undercut in the direction the tree is to fall. This cut forms a wedge about one-third the diameter of the tree.

After the undercut is made and the wedge removed, stop the engine and move around to the back of the tree for the back cut. This is a straight cut slightly higher than the undercut. Do not cut clear through to the undercut; a small "hinge" should be left to guide the fall of the tree.

6. Limbing and pruning. Limbing is the removal of branches from a tree that has been cut down. Pruning is the removal of branches from

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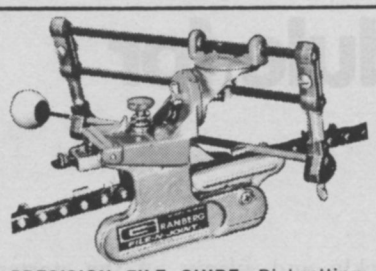

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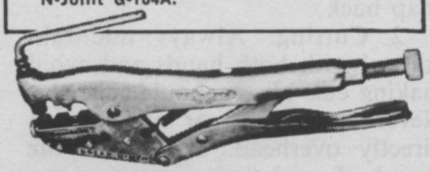

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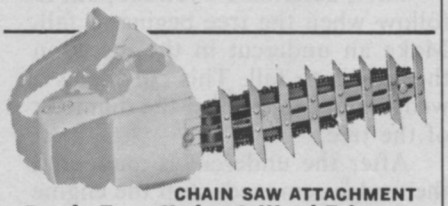

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a standing tree.

Limbing cuts should be started at the crotch, or top side of the branch. The best way to limb a tree is to begin at the base and work towards the top. Take extra care with underneath branches on which the tree rests. The tree may settle when they are removed.

When pruning large branches, notch the underside of the branch first. Complete the cut from the upper side, a few inches further out on the limb to keep the trunk bark from being stripped.

7. Bucking. This is the term used for cutting felled trees or logs into shorter lengths. Firm, sure footing is important; on sloping ground, stand uphill from the log. Avoid "traps" where the log may bind the bar during the cut. Do not allow the chain to bite into the dirt or hit rocks or other debris.

8. Clothing and equipment. Clothes should fit well, but not tightly. Loose sleeves, sweaters and open jacket flaps may catch on branches or other projections and throw the operator off balance.

A hard hat should be worn anytime trees are being felled, or limbs pruned. Heavy, reinforced-toe work shoes and snug fitting work gloves are recommended and safety glasses should be worn whenever a chain saw is operated.

Every chain saw operator should be constantly aware that his saw is a powerful cutting tool — potentially dangerous when misused.

According to the American Pulpwood Association, forty-five percent of logging industry accidents to chain saw operators are not caused by the saw itself, but by overhead hazards, such as limbs that fall during felling, or improperly felled trees.

The Association lists three primary unsafe acts which lead to injury accidents as:

1. Failure to use mechanical means to safely pull a lodged tree — one which fell partially and is suspended by other trees — to the ground.

2. Failure to remove potential overhead hazards such as dead standing trees (snags) and limbs which are loosely hanging overhead prior to cutting.

3. Carrying out felling operations while other personnel are in close proximity. □

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The Lightweights: Little Saws for Big Jobs

By JERRY KARTHEISER, Product Manager, Skil Corp.

USE and application of lightweight chain saws is well known to many members of the Green Industry who earn a sizeable percentage of their income with chain saws. But for those whose familiarity is limited to an occasional limb removal, merits of lightweight chain saw use should be carefully considered.

For starters, we will be "basic": why use a chain saw?

The casual user may submit just one reason: easier cutting. The commercial user sees this as a major factor, too, but he finds other benefits:

Faster cutting. For the man who must cut wood as part of his occupation, time is money. Where a golf course superintendent may want to lop a few branches, the commercial user may have five or ten trees to cut or trim, or several cords of firewood to prepare, and he wants to finish this task and move on to another. The chain saw provides a cumulative savings in time which can have practical workday values.

Versatility. A chain saw will handle probably any outdoor cutting of wood that can confront, for example, a nurseryman or a golf course superintendent. It will cut any type of wood. And it can zip through the odd cutting job that crops up every so often.

Safety. The chain saw minimizes the body movement and exertion that, with a manual saw, can pose possible safety problems while working up in the branches of a tree.

A 100-ft. extension cord gives a good bit of mobility — and utility — to a lightweight electric chain saw.

If the merits of the chain saw have been established for the commercial user, the next decision is whether to buy gasoline or electric.

The first point to emphasize is that, when both types are the same size and power output, there is no difference in cutting ability.

The first and most obvious difference between the two is accessibility to the job at hand. This of course eliminates the electric-powered chain saw from many applications. And the much greater portability of the gasoline-powered saw has advantages even where a source of electricity is available.

The electric, on the other hand, has advantages where its use would be indoors or in or near public areas. It's quieter and has the merit of not producing exhaust fumes.

Some more pro's and con's on the electric saw:

—There's no problem in starting nor with the possibility of running out of fuel . . . worth consideration when the job at hand is in an awkward location such as up in a tree.

—The electric chain saw generally is less expensive at retail than the gasoline; maintenance also will tend to be less expensive.

—On the negative side, distance from a power source has another limiting effect on the use of an electric chain saw. It operates best within the limits of a 100-foot extension cord. Beyond 100 feet voltage begins to drop, and beyond 150 feet the saw will not provide consistently effective cutting.

Special features in today's lightweight chain saws contribute to their versatility and make them an even more efficient partner in heavier cutting operations.

Gasoline models, and some electric chain saw models, have a centrifugal clutch which disengages if the chain gets bound in the cut, a periodic occurrence when cutting large-diameter trees and branches. This clutch action . . .

—reduces the chance of kickback;

—reduces possible risk when working in a tree;

—reduces load on the saw and thus helps prolong its life.

Another 'plus' in modern lightweight chain saws is their fuel capacity. With certain models the operator has up to 15 or 20 minutes of cutting time available, an attribute which permits railroad or power line right-of-way work far from the base of operations.

How big a chain saw is needed? Almost all chain saw work in the applications considered here can be handled by 10, 12, 14 or 16-inch cutting bars. The effectiveness of today's saws means that a chain saw with a 16-inch bar will make an efficient 16-inch cut, and an efficient 32-inch double cut. □

Positioning of the cutting bar on this 16-in. gasoline chain saw enables the operator to cut close to the tree trunk.

Important factors in operating a chain saw safely are good footing and a clear area.

ty of fuel. I've yet to see any chain saw cut much wood empty and without a guide bar or chain. Compare "ready to work" weights only.

An operator should not carry more saw than he needs, for this affects his mobility, tires him quickly and is a poor investment. Consider the weight-to-power ratio. Very few chain saw manufacturers provide horsepower rating and there are no industry standards. Displacement is not necessarily a reliable guide to power output, either. Some makes of chain saws derive much more power per cubic centimeter or cubic inch than others. Always compare two saws with the same chain and guide bar length, because the type of bar and chain can greatly affect cutting speed.

Balance and Handling

Look for excellent balance in both felling and bucking attitudes. This makes a saw "handle better" and feel lighter which, of course, reduces fatigue. Look for a low, narrow profile, a smooth bottom and an exterior with no sharp corners, exposed linkages, oil lines or parts that will catch on clothing or brush. Try the saw "limbing" to see how it handles.

Note the controls. Are they simple? Positive action? Within easy reach of the control hand? Does it have a throttle trigger interlock? (This means the operator "control" hand must be firmly in place before the throttle can be opened.) Are all rotating parts enclosed? (except the chain, of course) Is it equipped with a front hand guard? (to prevent the "holding" hand from slipping onto the revolving chain.) How about a rear or "control" hand from whipping brush, stubs or a broken chain "fling" as well as accidental activation of the controls. Some saws are available with an automatic chain brake that stops the chain in the event of a kickback in less than two-tenths of a second.

Lawn Medic bags it!

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RENEWAL

WEEDS TREES AND TURF is sent to you because you and your business are part of the Green Industry. You receive this magazine on a free basis.

To continue receiving each issue at no cost, we need your okay. Subscriptions are limited to bonafide members of the Green Industry. If you operate commercially within this dynamic marketplace, you qualify.

MAY WE HEAR FROM YOU TODAY? The attached card (left) is for your use. Please check the type of business you are engaged in, sign the card and drop it in the mail. We'll do the rest. We want your continued support. Thank you, Arthur V. Edwards, Publisher.

(This renewal notice is a requirement of our national auditing service to verify that you are a member of the industry and that you wish to receive the magazine.)

Before you can hire handicapped people, you've got to know where to find them.

If you are interested in hiring people who have overcome their handicaps, hard-working, skilled men and women, write to your State Director of Vocational Rehabilitation.

Tell him what kind of business you're in. What job openings need to be filled.

And he'll put you in touch with the right people for your company or organization. People who will work to their fullest potential. And help your company—and our nation—prosper.

Write: Director, State Department of Vocational Rehabilitation at your state capitol.

Steady the saw, keep your balance and start the saw on the ground or other solid surface.

Note the direction of the exhaust gas and cooling air discharge. Is it away from the operator? Is he protected against contact with a hot muffler surface?

Does it have an automatic oiler? This lets the operator concentrate on more important things than keeping his chain and bar properly lubricated. Does it have a flow adjustment for this lubrication to conform to timber type and size, season, temperature, and larger length bar and chain? Does it pump at idle, wasting oil and making a slippery mess? Do the chain saw tanks hold enough, and are the fuel and lubricating tanks integrated to avoid bothersome and unnecessary refilling stops.

Is the spark plug located where it will not shock the operator if it has a leaky "boot"? (This can surely make a man jump at the wrong time.) Does it start easily? (Some accidents have been caused by an exasperated operator violently yanking on the starter cord of a balky saw and soon finding a running saw in his lap.)

Noise, Smoke and Vibration

Check the noise level. Observe the muffler design, location, construction and shielding for the operator against hot surface contact. Under the Walsh-Healy regulations, some brands of saws can be run twice as long as others without hearing protection. Not only has noise been proven to effect fatigue, but it prevents voice warnings or the "crack" of a tree going over from being heard easily.

Can it be equipped with an approved U. S. Forest Service Spark Arrestor Screen? How about smoke and exhaust fumes, which can restrict vision and produce nausea? Can it use a low oil/fuel ratio mix? This eliminates most smoke, reduces carbon build up in exhaust ports and actually extends spark plug life.

Try the saw to feel the vibration level. Vibration like noise, induces fatigue. Does the saw have an anti-vibration system? Does moving the saw within the vibration mounts affect the throttle action? This could hold the throttle open at the wrong moment.

Fire Hazard Reduction

Note the location of the fuel tank and the filter opening size and location. Some saws have a "drain" for the carburetor chamber immediately above the muffler! Can it spill on the spark plug or high tension lead? Is the muffler shielded against contact with dust, dry moss or needles? Is sawdust discharge easy and direct? Some saws have places where oily chips can build up in the muffler area, presenting a potential fire hazard.

Selection and Maintenance

Guide bar nose contour must match the chain being used. If the "geometry" of these two parts is not correct, particularly if the guide bar nose radius is too large, it can cause very severe kickback during nose contact with the wood.

One serious hazard in the woods today is the so-called "safety" chain. There is no such thing as a safe chain. As one safety director put it — "if it will cut wood — it will cut people." These chains are best referred to as "reduced" or "anti" kickback chains and do help to reduce kickback during certain types of limbing and brushing operations. Remember that the best and safest cutting attachments designed are also only as good as the maintenance they receive.

Many sharpening and maintenance publications are available from chain saw manufacturers and replacement chain manufacturers. Some companies also conduct "clinics" and maintenance classes. Simple tools are available to aid in better sharpening, jointing and maintenance of cutting attachments. These tools are a good investment since any chain that is properly and evenly sharpened (and jointed) is a smoother cutting, safer chain. A shop type chain grinder is also a good investment since it produces more consistent results.

Over the years, Stihl-American, like other conscientious chain saw manufacturers have diligently worked at making their saws safer more dependable.

Leon Short bags it!

NITROFORM*
organic nitrogen
The slow-release organic nitrogen that's good for cool season grasses . . . warm season grasses . . . all varieties of turf
STH74-6AR

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Golf course superintendents use DACTHAL on fairways and tees. DACTHAL is also used extensively on parks, industrial and commercial lawns, and by turf-care contractors — anywhere professional turf management is practiced.

DACTHAL breaks down quickly . . . is not overly persistent in the soil. Tough on crabgrass, but nice to grass.

Don't let the sun rise on weed-infested turf. Use DACTHAL W-75.

Diamond Shamrock
AGRICULTURAL CHEMICALS DIVISION

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10 Steps to Improved Cutting

By FRANK McDONALD, Product Mgr., Pioneer Chain Saws

A PROPERLY FILED and jointed chain on a chain saw adds life to your machine by allowing it to cut faster and smoother at minimum engine stress.

But you won't get more life out of your saw just by taking a few quick whacks at the chain with a file. To assure maximum life and performance from your saw, adopt the following step-by-step guide to joint and sharpen the chain properly:

1. Clamp the chain in a vise to prevent the chain from moving sideways as you file it. Chain movement restricts ability to control the plane and achieve an even cut. Furthermore, placing the chain in a vise assures optimum control because you can use both hands on the file to prevent biting and skipping. If your chain needs limited touching up, but you are in the field where a vise isn't available, increase the chain tension to minimize movement.

2. Select the correct size chain saw file. You can determine proper size by consulting your owner's manual or a dealer, who will need the chain pitch and brand to help you. Incidentally, use the next smaller size file when cutters on the chain are worn back halfway. It will be easier to obtain the correct undercut and side plate angle.

3. Place the file in a cutter opposite your side. The sharpening angle may vary depending upon the type of chain, but manufacturers generally suggest you hold the file parallel to cutting edge at 35 degree bevel angle with the side plate edge 80 to 90 degrees from the cutter's base line. If you follow these instructions carefully the top plate undercut or cutting angle will be correct. This angle, which makes the chain pull itself into the wood, results from the side plate angle and the file position relative to being horizontal. These angles will give satisfactory performance under average cutting conditions.

4. Always let one-fifth of the file diameter protrude above the cutting edge to assure the correct undercut. If the file is held too high, the cutter will have a blunt and slow-cutting edge. Stress and extra pressure required to make it cut will produce wear and eventually break the chain. Similarly, a thin and quick-dulling edge (with hook) will result if the file is held too low. A hooked cutter will tend to grab while cutting and cause wear on the guide bar rails.

5. Keep the file snug to the top edge of the tooth and apply two or three firm strokes against the edge. The outside surface of the cutting edge is very hard (chrome plated), so you'll preserve the file by pushing it outward in a straight line. Filing in a straight line can be assured by stiffening your wrist and pretending your underarm is a solid extension of the file.

6. Leave the file in the cutter between individual filing strokes. However, apply pressure only on the outward stroke and move the file away from the cutting edge on the return stroke to avoid dulling the edge. Never remove more metal than necessary, and finish all cutters on one side before doing the other side. Your best measure of sharpening accuracy is a visual check to make certain the cutters are not back sloped or hooked, which are two common sharpening mistakes.

7. Next check the joint clearance, because correct joint height is vital to a fast cutting and smooth operating chain. The joint may vary depending upon the manufacturer, but the normal joint on chains is 0.025-inch.

8. Use caution if more joint is required, because an improper joint

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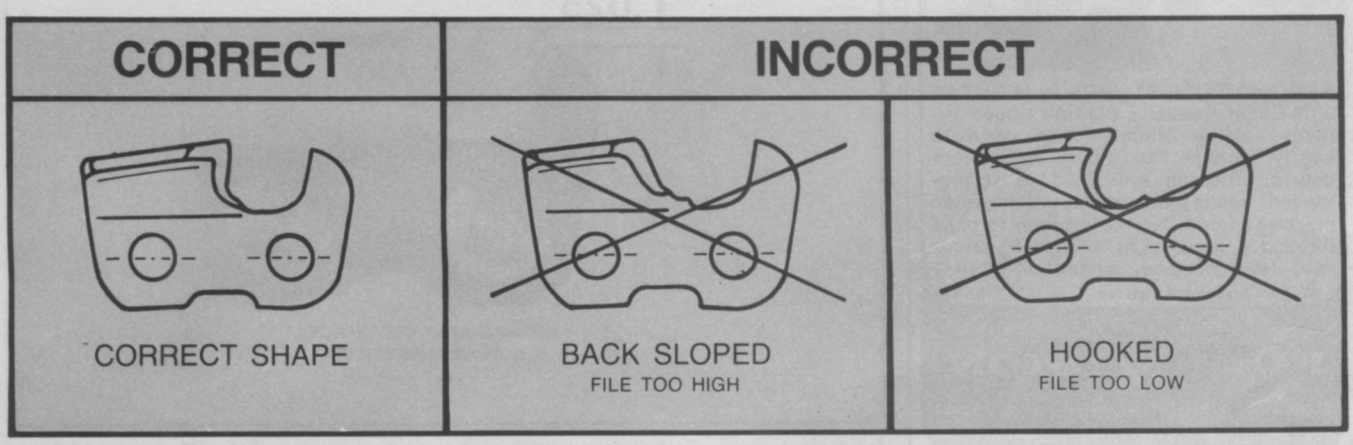


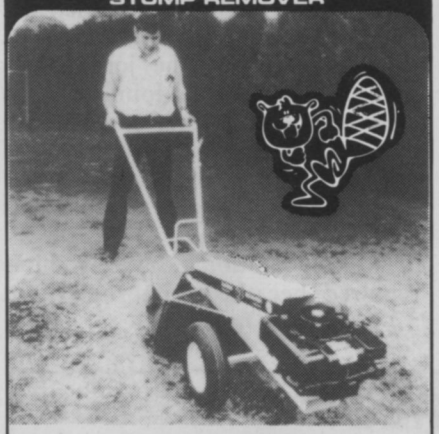
A visual check reveals whether cutters have been sharpened properly. Back sloped or hooked cutters are two common sharpening mistakes.

will cause excessive wear and shorten the life of the bar and chain. Excessive joint will cause cutters to bite too deep, forcing chain to grab and overload the engine. Conversely a shallow setting will prevent cutters from biting into wood.

9. Correct improper joint either with a flat file or a jointing gauge but, whenever possible, use a gauge for optimum results. When jointing with a flat file, a steady firm stroke will remove 0.002 to 0.003 inch of metal. File all depth gauges with an identical number of strokes and pressure. To protect against excessive jointing, never make more than two passes of a file before retesting the joint. Two passes with a file will remove about 0.005 inch of metal.

10. When using a gauge, set the filing block to the desired joint. Place gauge on chain so the depth gauge protrudes through the hole in the filing block. Hold the gauge firmly with your left hand and file down depth gauge to top of the filing block. Always file depth gauges from the same side of the guide bar. □

EAGER BEAVER
STUMP REMOVER



REMOVE TREE STUMPS IN MINUTES with Eager Beaver's carbide tipped tri-level cutting blade. Clean up more easily because flexible shield gathers debris. Locking kickstand is spring-loaded; keeps blade above ground when starting engine. Narrow enough to pass through a gate; light enough to eliminate lawn damage. Write for details.
Distributors Inquire WTT-4

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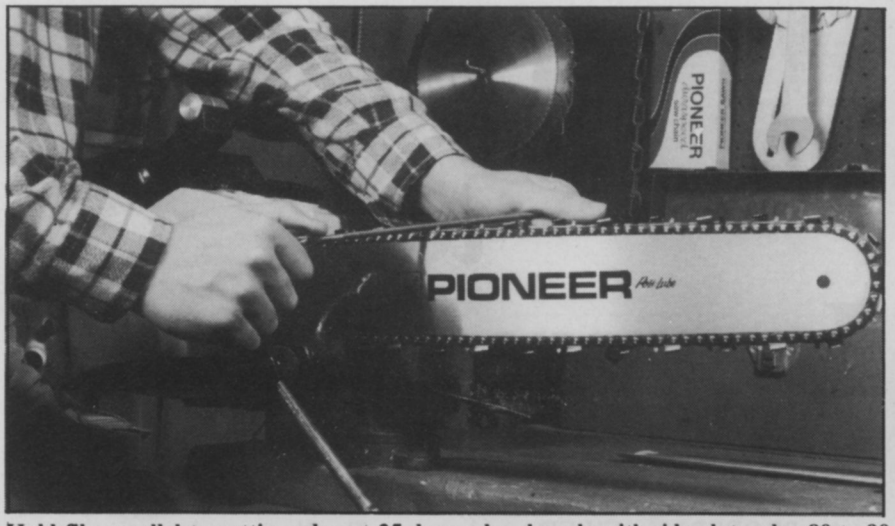
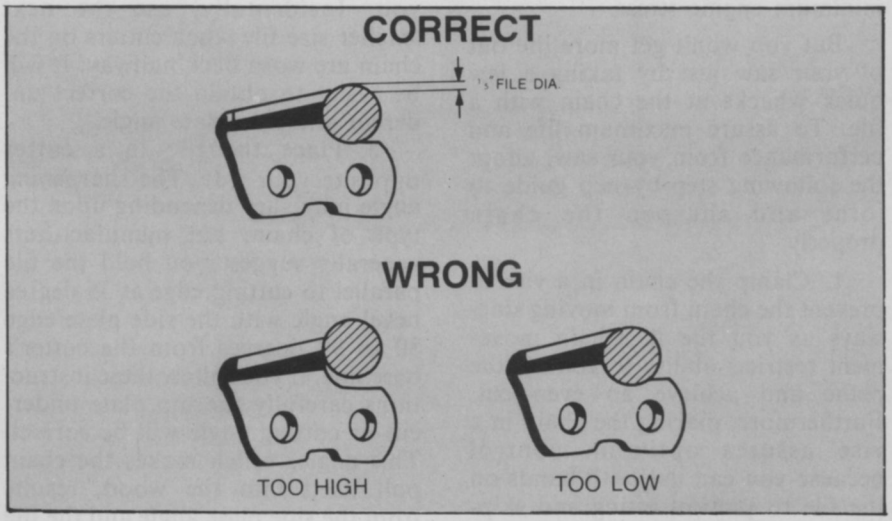
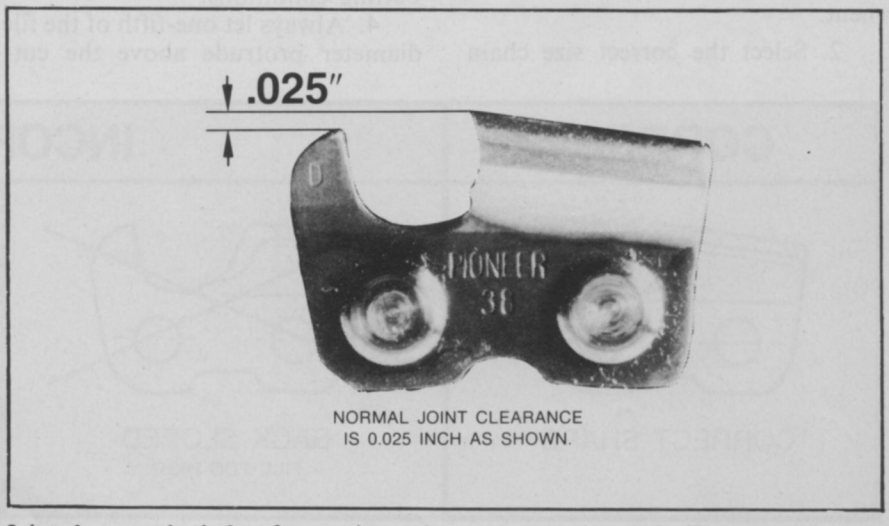


Hold file parallel to cutting edge at 35 degree bevel angle with side plate edge 80 to 90 degrees from cutter's base.



One-fifth of the file diameter should protrude above the cutting edge to assure correct undercut.



Joint clearance is vital to fast cutting and smooth operating chain. The normal joint on chains is 0.025-inch.

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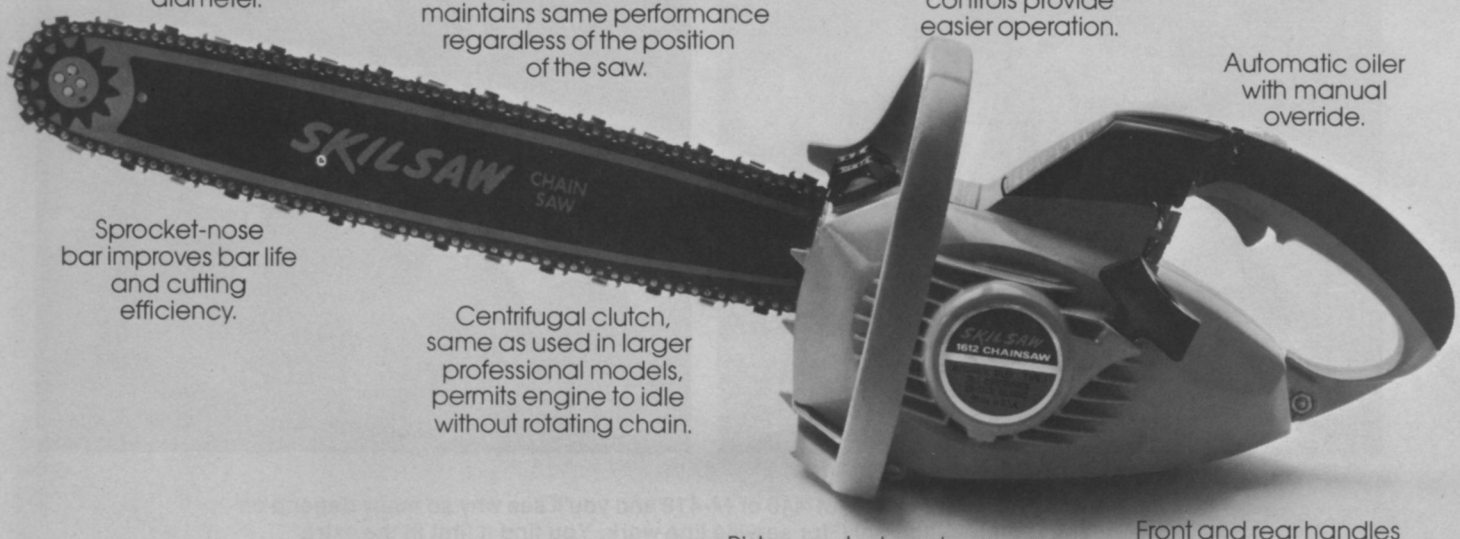

Reversible cutting bar fells trees 32" in diameter.

All position carburetor maintains same performance regardless of the position of the saw.

Conveniently grouped controls provide easier operation.

Automatic oiler with manual override.

Sprocket-nose bar improves bar life and cutting efficiency.

Centrifugal clutch, same as used in larger professional models, permits engine to idle without rotating chain.

Piston-ported engine improves starting, idling and acceleration and gives constant cutting power.

Front and rear handles placed for best balance, comfort and control.

This lightweight can really cut it.

Here's a genuine lightweight chain saw that supplies the muscle professionals need. Get a grip on the Skil lightweight, and clear that underbrush, fell 32" trees, and cut logs into a winter's worth of firewood. Skil can handle it.

Take a look at the features. It's the powerful lightweight you've been looking for. It's from Skil.

SKIL®

1612 Chain Saw. The powerful lightweight.

Dependability? We're Glad You Asked!

Expose the guts of a Vermeer M-440 or M-418 and you'll see why so many depend on "The Diggin' Dutchman" for service line work. You find it first in the extra heavy-duty, welded construction . . . in balanced design and machine weight that actually embarrasses the competition. You feel it in articulation, power steering, 4-wheel drive, smooth hydraulic power . . . plus a host of heavy-duty, labor-saving attachments . . . and with a drive system that's engineered to beat the day-in, day-out punishment of service line work. You get it in a Vermeer, because "The Diggin' Dutchman" doesn't take short cuts.

Write, or better yet, call him (515/628-3141) for a free demonstration.

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7204 NEW SHARON ROAD • PELLA, IOWA 50219

Both of "The Diggin' Dutchman's" M-440 (with liquid-cooled engine) and M-437 (air-cooled) machines feature P-12A vibratory plows with quick-tach reel carrier.

At the same time, you double your job capacity with a backfill blade that swings 45° left or right and tilts hydraulically for sloping surfaces

. . . and triple your capabilities with two heavy-duty backhoes, which swing a full 180° . . . Loaders and boring attachments also available.

For More Details Circle (103) on Reply Card

Chain Saw Product Preview

No. 701

New from Frontier Division, Quadra Manufacturing, Inc., the Mark I "VIP" (Vibration Isolated Powerhead) is designed to fill the growing need for a lightweight, reasonably priced saw with features previously found only on expensive professional type units. Mark I VIP has all the features of the Mark I automatic, plus: vibration isolating insulators at all points where handles come in contact with engine housing; tip-up hand guard just forward of front handle; throttle lock feature to prevent accidental revving of the saw. Priced at $149.95 complete with 12-inch sprocket nose bar and chain, this is said to be the lowest priced anti-vibration saw on the market today. **For more details, circle No. 701 on the reply card.**

No. 702

Designed for rugged, high speed sawing under difficult conditions, Milwaukee Electric Chain Saws are available in two models — 16-inch and 20-inch. Powered by 13-amp 115-volt Milwaukee-built motors, both saws deliver a full 2 hp at the chain, cut at a speed of 2,000 feet per minute, and feature quiet, smooth electric power and instant starts even in freezing temperatures, without fuel or fire hazards. Model 6205 (16-inch) weighs 17½ lbs. and 20-inch Model 6206 weighs 18½ lbs. Other features include all ball bearing transmissions with hardened steel gears, plunger type chain oiler and large capacity oil reservoir, tempered steel guide bar with simple chain adjustment and specially designed handles for fatigue reduction. Operates on standard 115-volt or with portable generating equipment. **For more details, circle No. 702 on the reply card.**

West Germany's Solo Kleinmotoren GmbH has released a fourth version to its modular chain saw design series 620/650/660AV — the 655AV Model. With a displacement of 70 cc. (4.27 cu. in.), the new Solo

(continued)

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organic nitrogen

The nitrogen that can be applied with the least danger of burning. No leaching either. Try it!

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Sitting Pretty?

Goshen benches offer a wide selection of fast selling, long lasting, outdoor seating. Choose from a variety of models and sizes. All benches are shipped knocked-down for maximum freight savings. Simple assembly instructions are included in each carton.

Inquiries from distributors and dealers are invited. Send for complete information.

Goshen Mfg. Co.
612 East Reynolds Street
Goshen, Indiana 46526

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655AV delivers roughly 6½ hp/SAE. Designed primarily for the professional market, the 655AV is available with standard 20-inch or 24-inch guide bars. Automatic chain oiling and throttle safety lock are standard; an optional wrap-around handlebar is available. Solo's abrasive saw attachment for pavement, concrete and metal cutting may also be used with the 655AV. **For more details, circle No. 703 on the reply card.**

No. 703

Reinco

A 4-TON-AN-HOUR "MINI-BRUTE": the new Reinco TM7-30 truck-mounted mulcher

IDEALLY SUITED FOR COMMERCIAL OR RESIDENTIAL TURF WORK.
The Reinco TM7–30 is a "lawn-a-minute" work horse that blows mulch a distance of up to 60 feet. Its unique straight-through drive eliminates power-robbing belts, chains, and gears. But most important of all, the TM7–30 cuts labor expenses as much as 5000% over hand shaking. Check out all the other advantages like low maintenance and versatility. You'll find the Reinco TM7–30 a real profit maker.

ONE MAN, ONE HYDROGRASSER perfectly suited for establishing grass on home lawns and other small areas.

One man can easily fertilize, seed, and mulch up to 6 good size lawns a day with the PP500. Only one moving part insures low maintenance. Simple to operate. Add mulch, seed, fertilizer plus a soil binder such as Terra Tack to the circulating water to form a homogenous slurry. . . then spray . . .that's all there is to it. Spray on all the ingredients necessary for good turf—all in one easy operation. Check out the time. . .you'll be surprised. **For further information write to:**

Reinco P. O. Box 584, Plainfield, N. J. 07061 (201) 755-0921

Echo Chain Saw Division, Kioritz Corp. of America, is introducing a high-performance, low cost and low maintenance scythe, Model SRM-202F. The lightweight SRM-202F (13 lbs.) is equipped with a Kioritz two-cycle engine. Scythe is outfitted with automatic rewind starter, centralized clutch and can be equipped with a 10-inch circular saw blade or 10-inch, 8-blade cutter. **For more details, circle No. 704 on the reply card.**

No. 704

Designed especially for today's high powered direct drive chain saw engines, the Olini 1500, from Olympic Instruments, Inc., is said to eliminate failings common to most small portable winches. This unit has a working weight of 50 to 60 lbs. and will operate at the safe working limits of the recommended wire rope. Drum capacity is 150 feet of 3/16-inch wire rope. Standard features include a unique level wind system, free spooling and a positive self-adjusting drum brake. The unit is powered by mounting medium or large direct-drive chain saws to stub

(continued)

"I'VE NOTICED ON P.G.A. COURSES I'VE PLAYED THAT HARD USE AREAS SEEDED IN MANHATTAN PERENNIAL RYEGRASS HOLD UP BETTER, LOOK BETTER AND PLAY BETTER THAN OTHER GRASSES. . ."

Patrick C. Fitzsimons

Fitzsimons on CERTIFIED Manhattan

Pat Fitzsimons, in winning the Glen Campbell Los Angeles Open at Riviera CC, Calif., Feb. 20-23, set a new course record of 64 for a single round and tied Ben Hogan's record for this event. Fitz, above, tees off on the No. 1 Manhattan tee at Salem Golf Club course, Salem, Ore., where he previously tied the world record score of 58 on a 6,000 yard course.

TURF-TYPE

PERENNIAL RYEGRASS

- GREAT FOR HARD USE AREAS
- UNIFORM DARK GREEN COLOR
- FINE TEXTURED—BLENDS WELL WITH OTHER GRASSES

Manhattan Perennial Ryegrass was selected and developed by Dr. C. Reed Funk, Rutgers University. Manhattan develops a uniform dark green leafy, dense turf with leaf blades as fine as many Kentucky bluegrasses.

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EXCLUSIVE MARKETING AGENT
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Certified Manhattan is grown by the

MANHATTAN RYEGRASS GROWERS ASSOCIATION

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'IT'S KID PROOF'

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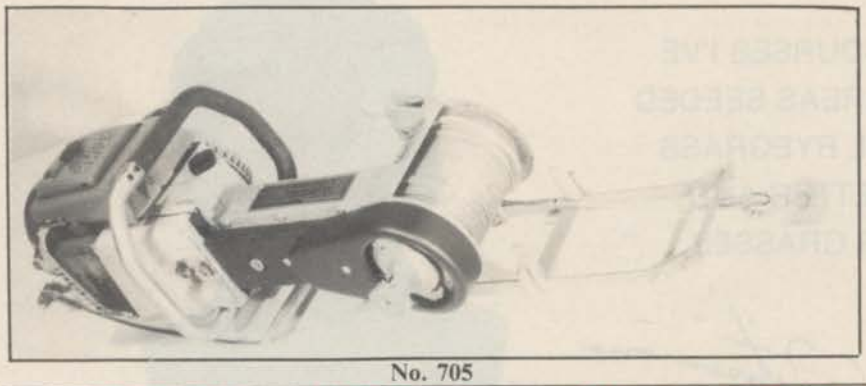


No. 705

bar of winch. This bar, used with a rim sprocket and loop of cutterless saw chain, transmits engine torque to the winch without mechanical alteration to the saw. Restoration of the saw for cutting is comparable to changing a bar and chain. Standard winches have either ⅜-in. or .404-in. pitch drive and other pitches are available as special orders. Also available is Model 2000, a self-powered version of Model 1500, powered by a Tecumseh two-cycle engine. Engine and winch are mounted on a welded steel frame that provides fuel storage and handles for transport and control. **For more details, circle No. 705 on the reply card.**

Why Not Spray the DEPENDABLE Way . . .

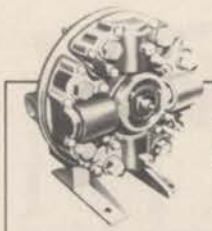
SMITHCO

Why are Smithco Sprayers ALWAYS ON THE GO? They're dependable . . . THAT'S WHY!

All Smithco Sprayers feature long lasting corrosion resistant fiberglass tanks, (guaranteed for 3 years) centrifugally cast for added strength and appearance. High capacity strainers with stainless steel screen and, mechanical tank agitation. For big jobs select from five models of the HAWK. For smaller requirements there are the LARKS.

A Size for All Occasions

Smithco sprayers are equipped with pumps that produce 10-20-25 GPM up to 800 PSI with tank capacities from 110 to 500 gallons. Available either trailer or skid mounted; gas engine with V-belt drive or PTO; convenient drains, hose and boom outlets.



The Golden Eagle Pump

Dependable, four cylinder, positive displacement, short stroke design for pulsation free operation. Plunger cups that are guaranteed for one year, and Timken Tapered Roller Main Bearings guaranteed for two years. Ceramic valves with Nylatron seats. Longer pump life than any other pump.

SMITHCO

MAKES SENSE FOR '75

SMITH[illegible], INC., WAYNE, PENNSYLVANIA 19087

No. 706

A new steel hand guard is being introduced by Pioneer as an accessory for its 1975 professional and farm chain saw line. The safety guard lists for $5.45 and is bracketed to the front handle of the Pioneer P40 and P50 model chain saws. The accessory is designed to protect an operator from injury in case his hand slips off the saw handle. Pioneer chain saws and accessories are marketed by OMC-Lincoln. **For more details, circle No. 706 on the reply card.**

Echo Chain Saw Division, Kioritz Corp., is now marketing specially compounded motor oils for two-cycle engines including chain saws, power blowers and brushcutters. The oils will be packaged in cases of 48, 8-ounce, six-pack containers. **For more details, circle No. 707 on the reply card.**

The Growing Commercial Market

NO ONE will argue that the cost of materials and labor is climbing at an alarming rate. But is the chain saw industry's growth rate keeping pace?

"The growth rate is tapering off," said Frank McDonald, Pioneer product manager, "but only when measured against the phenomenal 25 to 35 percent annual sales upsurge experienced industry-wide since 1972."

He predicts gasoline-driven chain saws will increase 13 percent this year in North America to 1.7 million units. The farm, professional and commercial segments of the market are expected to increase 10, 5 and 8 percent respectively.

McDonald, also a director of the Power Saw Manufacturers Association, estimates 90,000 saws will be sold this year in the commercial market compared to 72,000 units in 1972.

However, unit sales to the commercial market were down slightly in early 1975 compared to a similar period a year earlier. McDonald attributed the decline to the economic slump and high unemployment, but said marketing research studies project a rebound before the key fall buying season.

The key period will be four months beginning in September when an estimated 51 percent of industry-wide sales are expected to be recorded.

Commercial unit sales this year are expected to constitute almost 7 percent of the North American chain saw business. Because commercial saws are operated in work-a-day conditions, the average commercial saw is replaced at least once every 2 years at $190 minimum.

"The commercial market is a slowly growing segment of the business, but it is dependable and maintains a steady upward curve," McDonald said. "Growth in the commercial field will be influenced by replacement sales plus an increase in the variety of new chain saw uses that are constantly cropping up in the commercial field."

McDonald sees the industry-wide growth as sparked by the high-volume consumer market, which was first penetrated in 1971 with the advent of saws selling under $140. Low-priced saws enabled consumers to discover the utilitarian value of chain saws around the home, but there is evidence the casual market pipeline is filling up.

A chain saw can last a homeowner a lifetime if he only uses it once or twice a year to cut firewood or trim trees. "That's why the tremendous growth is peaking out. The replacement business isn't as significant as in the commercial segment," said McDonald.

The news from 1974 was good and 1975 looks even better, according to Don Bartelt, general sales manager of the Echo Chain Saw Division of Kioritz Corp. "Our sales were up nearly 200 percent over 1973," Bartelt said. "In 1973 we grew 113 percent."

WEEDS TREES AND TURF recently completed the 1975 Golf Course Market Study and found that the 9,300 golf course superintendents own an average of 1.8 chain saws. Most experts agree that chain saws purchased by superintendents fall within the commercial market.

WEEDS TREES AND TURF also polled leaders in the chain saw industry. We asked the manufacturers to describe their 1975 market forecast. Most respondents agreed that supplies were sufficient to meet market demand. Early 1975 sales indicators were split evenly between steady and down. Only one respondent indicated an upward trend in sales.

We also asked the manufacturers to compare their profit outlook for 1975 to their 1974 net. Most respondents indicated an unchanged profit picture from 1974. □

"The New Chain Saw for the Handyman" is the slogan Husqvarna, Inc. has put on the new Husky 35 Chain Saw, priced at $124.95 and featuring a Phelon ignition and Tillotson all-position carburetor. Another feature is automatic oiling with a manual over-ride. The Husky 35 weighs under seven pounds and has a 2.2 cubic inch, two-cycle engine. Bar lengths are available from 10 to 16 inches. All components are said to be easily accessible under the protective casings, making the chain saw easy to service. Top filling gas and oil caps offer ease in maintenance, according to the manufacturer, and the new chain saw has more gas and fuel capacity over the Husky 22. A recessed starter housing enables the owner to start the saw with ease. A new air direction baffle is said to keep the engine running quieter at a cooler temperature and there is more room to grip the rear handle with work gloves. According to the manufacturer, the Husky was designed with inexperienced users in mind. The tank and front section are extended to prevent fingers from coming in contact with the chain while sawing. **For more details, circle No. 712 on the reply card.**

No. 712

THE 1975 CHAIN SAWS

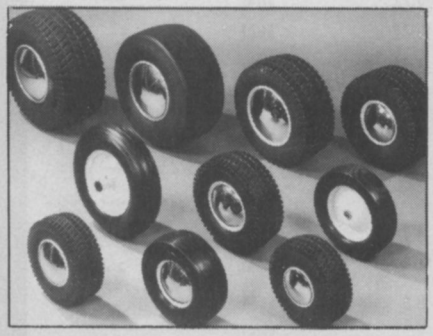
Manufacturer	Model No.	Bar Length (Inches)	Weight (Lbs.)	Engine Size (CID)	Chain (Brand)	Retail Price
Allis-Chalmers	75	14	8.5	2.1	—	—
P.O. Box 512	75A	14	8.5	2.1	—	—
Milwaukee, Wisconsin	95	17	13.75	3.6	—	—
	195	17	12.5	3.6	—	—
	295	17	12.5	3.6	—	—
John Deere	61	10	6.75	2.1	Sabre	$109.95
John Deere Road	81	12	6.75	2.1	Sabre	134.95
Moline, Illinois 61265	81 (Elec. Start)	14	8.5	2.1	Sabre	169.95
	91	14	6.75	2.1	Sabre	142.95
	14	15	10.0	2.8	Sabre	192.95
	18	17	13.0	3.6	Sabre	212.95
	19	19	13.0	4.0	Sabre	262.95
	23	21	15.5 (Less Guide Bar)	5.0	Sabre	316.95
	23	23	15.5 (Less Guide Bar)	5.0	Sabre	331.95
Dolmar Maschinen Fabrik	118	15-24	13.0	2.7	Dolmar	256.46
947 W. Foothill Boulevard	122	17-30	16.0	3.8	Dolmar	319.54
Monrovia, California 91016	144	17-36	19.0	5.5	Dolmar	363.22
	CT	21-60	23.0	7.4	Dolmar	497.86
Frontier Division	Mkl Automatic	12	6.6	2.2	Sabre	129.95
Quadra Manufacturing, Inc.	Mkl Anti-Vibe	12	7.2	2.2	Sabre	149.95
P.O. Box 491						
Trail, B. C. Canada						
Kioritz Corporation of America	CS302	14	8.1	1.83	Oregon	159.95
350 Wainwright Avenue	CS60S	20	15.4	3.75	Oregon	264.95
Northbrook, Illinois 60062	CS451VL	16	11.4	2.7	Oregon	219.95
	CS601SVL	20	14.5	3.7	Oregon	299.95
	CS701SVL	24	14.7	4.31	Oregon	324.95
	CS601S	20	15.0	3.7	Oregon	284.95
McCulloch Corporation	Mini Mac 25	12	6.9	1.8	McCulloch	109.95
5400 Alla Road	Mini Mac 30	12	6.9	1.8	McCulloch	119.95
Los Angeles, California 90066	Mini Mac 35	14	7.1	2.0	McCulloch	139.95
	Power Mac 6A	14	6.9	2.0	McCulloch	169.95
	Mac 10-10A	16	12.4	3.3	McCulloch	209.95
	7-10A	to 28	13.0	4.3	McCulloch	319.95
	Super 250	to 42	20.8	5.3	McCulloch	299.95
	Pro Mac 55	16	12.5	3.5	McCulloch	239.95
	Pro Mac 60	16	13.0	5.8	McCulloch	289.95
	Super Pro 60	16-30	14.7	3.8	McCulloch	299.95
	Super Pro 81	30-36	15.5	5.0	McCulloch	369.95
	Super Pro 105	30-42	22.3	6.5	McCulloch	419.95
	Super Pro 125C	42	22.6	7.5	McCulloch	499.95
	G-70	15 bow	16.9	4.3	McCulloch	359.95

Manufacturer	Model No.	Bar Length (Inches)	Weight (Lbs.)	Engine Size (CID)	Chain (Brand)	Retail Price
Milwaukee Electric Tool Corp.	6205 Electric	16	17.5	2 h.p.	Windsor	169.00
13135 West Lisbon Road	6206 Electric	20	18.5	2 h.p.	Windsor	179.00
Brookfield, Wisconsin 53005						
New Draulics, Inc.	AHS-0-C9	—	6.0	Hydraulic	Windsor	325.00
2252 So. 3600 W.	AHS-0-C12	—	6.5	Hydraulic	Windsor	335.00
Salt Lake City, Utah 84119	APS-0-3N-C9	—	7.75	Hydraulic	Windsor	340.00
	APS-0-3N-C12	—	8.0	Hydraulic	Windsor	355.00
	APS-0-4N-C9	—	8.1	Hydraulic	Windsor	345.00
	APS-0-4N-C12	—	8.5	Hydraulic	Windsor	360.00
	APS-0-5N-C9	—	8.5	Hydraulic	Windsor	350.00
	APS-0-5N-C12	—	8.75	Hydraulic	Windsor	365.00
	APS-0-6N-C9	—	8.9	Hydraulic	Windsor	355.00
	APS-0-6N-C12	—	9.1	Hydraulic	Windsor	370.00
Pioneer Chain Saws	P20	14	10.3	3.14	Pioneer	169.95
Box No. 82409	P25	16	10.4	3.14	Pioneer	184.95
Lincoln, Nebraska 68501	1200A	16-24	13.3	3.546	Pioneer	229.95
	P40	16-28	14.0	4.0	Pioneer	289.95
	P50	16-36	16.5	5.0	Pioneer	329.95
Stanley Hydraulic Tools	7H	12	6.0	Hydraulic	Oregon	—
13770 S. E. Ambler Road	7H	15	7.0	Hydraulic	Oregon	424.00
Clackamas, Oregon 97015	7H	18	8.0	Hydraulic	Oregon	450.00
Skil Corporation	1610	12	7.6	2.2		134.99
5033 Elston Avenue	1612	16	7.6	2.2		144.99
Chicago, Illinois 60630	1631	16	13.5	4.2		219 95
	1645	16	13.5	4.2		244.95
	1601 (Electric)	12	8.5	12 amp		89.99
	1602 (Electric)	14	8.5	13 amp		109.95
Stihl American	015	10-12	7.5	1.9	Stihl	—
107 Bauer Drive	020AV	12-16	8.0	2.0	Stihl	—
Oakland, New Jersey 07436	020AV/P	12-16	8.25	2.0	Stihl	—
	031AV	14-25	11.5	2.95	Stihl	—
	08S	13-15	13.5	3.4	Stihl	—
	041	13-25	12.0	3.72	Stihl	—
	041AV	13-25	12.5	3.72	Stihl	—
	041AVE	13-25	12.5	3.72	Stihl	—
	041G	13-25	15.0	3.72	Stihl	—
	045AV	13-25	—	4.6	Stihl	—
	051AV	17-32	18.5	5.5	Stihl	—
	070	17-41	22.5	6.5	Stihl	—
	075AVE	21-60	21.0	6.7	Stihl	—
	090G	17-41	26.0	6.5	Stihl	—
	090	17-41	23.5	8.5	Stihl	—
	E-10 (Electric)	10, 12	8.8	—	Stihl	—
	E-15 (Electric)	13, 17, 20	18 w/13"	2.6 h.p.	Stihl	—
	E-30 (Electric)	to 60	30 w/17"	3.7 h.p.	Stihl	—

New Products

STUMP REMOVER: Full Vision, Inc. has introduced its Eager Beaver stump remover that is said to remove a stump in 15 to 30 minutes, depending on diameter, coarseness and dryness of stump. The quick-change blade has six carbide cutting points that attack the stump simultaneously at three cutting levels, and can excavate the stump up to eight inches below ground level. Eager Beaver's features include a locking kickstand for operator and blade protection, a flexible safety shield that encircles the cutting area, a protective screen that covers the top and handles that pivot over the main body for compact transportation. The 180-lb. unit is powered by an 8 hp four-cycle engine with controls located on the handle.

Circle No. 175 on the reply card.



PNEUMATIC TIRES: Zedron, Inc. has introduced its Dura-Tech tire for use on compact tractors, riding mowers, snow throwers and other terrain and utility vehicles. According to the manufacturer, Dura-Tech's single component construction is an engineering breakthrough in tire design and elastomer technology. The pneumatic tire is a homogenous, one-piece continuous airtight structure made from a strong thermoplastic elastomer compound. Manufacture of the Dura-Tech tire, which does not use wire beads and fabric cords, is said to require 40 to 60 percent less raw materials than the conventional tire. Dura-Tech is available in a variety of colors and is totally recyclable.

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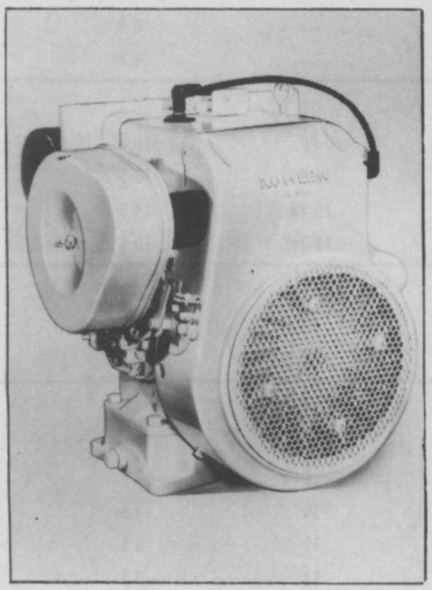

QUIET-PLUS ENGINES: Kohler Co. has a new "Quiet-Plus" line of engines designed to reduce engine sound levels. The seven models, modified versions of standard Kohler engines, include one- and two-cylinder models and range from 7.5 to 22 hp. The Quiet-Plus models have a special shrouding to adapt them for closed compartment installations — under garden tractor hoods or enclosed in the bodies of golf or utility cars — and an improved cooling fan which forces a high volume of air over the engine. Sound level is reduced mainly by subduing exhaust and air intake noise with a high-efficiency muffler and carburetor intake system that draws air from within the shrouding. Other features include asymmetric blade spacing on cooling fan to reduce fan noise, universal access on shroud for Bowden wires to choke and throttle controls and internally-vented crankcase breather which reduces emissions of unburned hydrocarbons. At speeds up to 2400 RPM, Quiet-Plus engines have the same output as standard Kohler models.

Circle No. 709 on the reply card.

DRY APPLICATION SYSTEM, A new 280 cu. ft. Auger Boom System (ABS) from Ag-Chem Equipment Co., Inc. is said to provide accurate application of any dry, flowable material. The new three-boom system (left, right and center) helps eliminate any uneven spreading caused by differences in particle size, weight and ballistic characteristics. According to the manufacturer, the System, which can apply 70 to 1200 pounds per acre, will provide uniform application of mixed material from ¾ inch diameter down to a powder. Dual function 360 degree swivel markers at the end of the 18-foot booms eliminate guesswork. Hydraulic boom operation is controlled from the cab. A Servo-system electronic sensing eliminates the need to hold the vehicle speed constant. Electronic system gives plus or minus two percent accuracy at spreading speeds up to 20 miles per hour.

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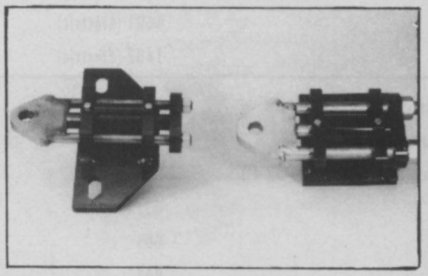

HITCHES: Superflex Hitches is introducing a complete line of shock-absorbing hitches including models that can be mounted on cars, trucks or tractors. All models are designed with a polyurethane cushion that acts like a shock absorber to remove the tugging, swaying or jerking caused by trailing loads. Interchangeable cushions are available for different load capacities, allowing the same hitch to be adapted to the specific job at hand. The truck and tractor models are said to support the heaviest of equipment. According to the manufacturer, the hitches are constructed to give a lifetime of safe service without maintenance, and are priced economically with an unconditional guarantee.

Circle No. 711 on the reply card.

Classifieds

When answering ads where box number only is given, please address as follows: Box number, c/o Weeds Trees and Turf, 9800 Detroit Ave., Cleveland, Ohio 44102.

Rates: All classifications 50¢ per word. Box number, $1. All classified ads must be received by Publisher the 10th of the month preceding publication date and be accompanied by cash or money order covering full payment.

FOR SALE

ARPS stump cutter teeth, top quality and best price in U.S.A., D. J. Andrews, Inc., 17 Silver St., Rochester, New York 14611. Call 716 235-1230.

FOR SALE 10 tree trimming trucks with man cabs and dump bodies. 2-12" chippers and a various assortment of tree trimming tools. 1 Trailer mounted mist blower. Novosel's Tree and Landscape Service, Inc., Phone 412 543-9501.

USED EQUIPMENT

52 FOOT HI-RANGER 1969 cab guard-steel deck, like new. M & M 12" chipper. 1971 Chev. 2 ton Chip truck, 14' bed, equipment in A-1 condition. Package deal $26,500.00. Pueblo Tree Service (Robert J. Kennedy, owner), 510 Van Buren, Pueblo, Colorado 81004. Phone 303 542-3532.

1972 FLECO 26" tree shear, $4500.00. Jim Green, Ohio Chipper & Equipment Company, Div. of Osborne Brothers Tree Service, Mentor, Ohio 216 951-4355.

BEAN ROTO-MIST-100, like new, under 100 hours. 300 gallon stainless steel tank, only $5,500. Cheshire Tree Service, Cheshire, Conn. 06410. Phone 203 272-0391.

VERMEER STUMP CUTTER, model 10, excellent condition, new engine, $3,500.00, Shearer Tree Surgeons, 300 Basin Rd., Trenton, New Jersey 08619. Phone 609 924-2800.

STUMP grinder log splitters, chippers, sprayers, bucket trucks, all reconditioned; let us know your needs, Essco, 5620 Old Sunrise Highway, Masspequa, New York 11758. Phone 516 799-7619.

3 AND 5 GANG Jacobsen blitzer mowers good condition. Schneider Sod Farm, 4750 South 24th St., Quincy, Ill. 62301. Phone 217 224-1893.

FOR SALE: 7 Gang Roseman mowers sharpen, repainted $950. — 18" Ryan sod cutter roll Ryder $750. — Wanted OC6 crawler. Phone 414 326-5267.

1971 JACOBSEN F-10 tractor with seven mower units, 1205 hours, $5500. Steve Linville, 3656 Hiawatha, Forth Wayne, Indiana 46809. Phone 219 747-3044.

VERMEER 700TM tree mover on 1966 Chevrolet truck, 6,000 miles. Quick Shade, R6, Warsaw, Indiana 46580. Phone 219 267-3970.

FOR SALE — One used Brouwer sod harvester. Phone 1 416 476-4311.

SEEDS

SOD QUALITY Seeds Merion, Fylking, Delta, Park, Newport, Nugget, Adelphi, Cheri, Glade and Baron bluegrasses also fine fescues. Manhattan rye grass. Custom mixing available. Michigan State Seed Co., Grand Ledge, Michigan 48837. Phone 517 627-2164.

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DISTRIBUTORS for D. J. Andrews, Inc. stump cutter teeth, pockets and bolts. Best wholesale and retail price in U.S.A. Add to this exclusive area, local advertising at our expense, etc., and you have our story. D. J. Andrews, Inc., 17 Silver St., Rochester, N.Y. 14611. Call 716 235-1230, or 716 436-1515.

PROFESSIONAL POSITION OPEN — Landscape design and sales, must be college trained and at least 5 years experience in the residential and light commercial field. Excellent opportunity for the aggressive person. Will match your existing salary plus more if you qualify. Contact F. R. Micha, Monroe Tree & Landscape, Inc., 225 Ballantyne Road, Rochester, New York 14623

MAN TO WORK AND MANAGE all phases of tree and spray business in Michigan. Salary open. Please send resume, salary requirements, and any questions to Box 129, Weeds, Trees and Turf, 9800 Detroit Ave., Cleveland, Ohio 44102.

MISCELLANEOUS

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PUGET SOUND TREE SERVICE, INC., 1111 No. 98th St., Seattle, Washington 98103, Stump Chipper Teeth and pockets for the Northwest. Phone 206 523-2240.

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AUTOMATIC IRRIGATION COURSE Sprinkler heads, remote control valves, controllers, vacuum breakers, precipitation rates, etc. all variations covered. System design, installation, operation, maintenance. Send for free course out-line. Larson Company, P.O. Box 4453, Santa Barbara, Ca. 93103.

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Connecticut Scientists Study Efficiency of Photosynthesis

Connecticut scientists are working to keep plants from wasting the sun's energy.

Research at the Agricultural Experiment Station in New Haven, Conn., are studying photosynthesis and are trying to produce more efficient plant varieties. Israel Zelitch, chief of the Station's Biochemistry Department estimates that some crop yields could be increased 50 percent by reducing excessive respiration. Station scientists are studying the chemical mediators that regulate the processes of respiration in plants. "Some of this respiration is essential, but a considerable part is wasteful and could be eliminated," Zelitch said.

Trimmings

Ancient remedies and several new discoveries of natural insecticide compounds derived from plants are reviewed in a new book issued by the U. S. Department of Agriculture (USDA). For example, a substance extracted from the leaves of the chinaberry tree kills corn earworms and fall armyworms. Some plants also contain compounds effective against insects that do not attack plants. In one study, scientists killed several species of ticks in less than four minutes by exposing the pests to powdered garlic. Other researchers found that cardol and anacardic acid from the nutshells of cashews killed mosquito larvae as well as grain weevils and caterpillars. English ivy leaves have been used since antiquity to destroy vermin of the body. An extract of the ivy bark, used as a spray, failed to kill house flies or yellow fever mosquitoes. Altogether, more than 500 studies conducted between 1954 and 1971 are reviewed. Copies of the Agriculture Handbook No. 461, "Insecticides From Plants," are available for $2 each from the Superintendent of Documents, U. S. Government Printing Office, Washington, D.C. 20402.

The January monthly fertilizer tonnage report issued by the University of Missouri-Columbia shows a total of 1,739 tons of non-farm fertilizer shipped. Total shipment for fiscal year 1974-75 was 608,259 tons.

Is the real thing better than a photo? Who actually gets more out of a situation — the person who sees it first-hand or one who views it in a photograph or slide? There's really not much difference, according to a recent U. S. Forest Service Study, if the photograph shows the entire scene. Three groups of respondents were tested. One saw the actual scenes, another viewed color slides and a third saw color photos. Reactions were recorded on a set of adjective scales and compared both graphically and statistically. The researchers found that a scene with "natural" content elicited similar on-and-off site responses. So the next time you're sitting in on an educational session and the speaker turns off the lights and flips on the slide projector just remember that it's almost as nice as being there in person.

An outdoor pest control program aimed at controlling the dreaded malaria mosquito has been launched by USDA scientists in El Salvador. Using the sterile male technique, scientists hope to release sterile males into the natural population in such large numbers that they, and not the virile males, mate with a large portion of the females. If the area is large enough or isolated to keep immigration of fertile insects at a minimum, no progeny develop. Thus insect populations are drastically reduced and the disease transmission cycle interrupted. According to present plans, the study will run for 2-and-one-half years. The first year will be devoted to preliminary studies of mosquito biology, working out techniques, establishing a mosquito colony, training nationals to operate the program and in general getting the essentials of the program underway. The full scale program will go into effect the second year.

Taking the stink out of composting sewage sludge are a couple of ARS researchers, Dr. Eliot Epstein and George B. Wilson. Their technique involves controlled aeration from beneath the sludge, pulling interior temperatures up from a minimum of 130 degrees F to as high as 185 degrees F. Woodchips are mixed with the sludge at a ratio of three parts chips to one part sludge before composting to improve drafting through the pile. Each pile is covered with a blanket of pre-dried screened sludge compost which prevents odors from escaping to the atmosphere. The cover of screened compost is also an insulating layer providing more uniform temperature distribution throughout the pile. Previous studies showed that temperatures obtained by this composting technique kill most human pathogens. Additional studies are being conducted on virus and bacterial survival during composting. Past experiments in composting sludge brought protest from nearby citizens and passing motorists.

Converted air pollution monitoring equipment is being used by a crop physiologist in the Institute of Agriculture and Natural Resources of the University of Nebraska to identify an effective herbicide and show how it works. Dr. Lowell Klepper has modified an early model monitoring devise and is using it to monitor nitrogen dioxide gas given off by a leaf of a plant treated with an herbicide. With his equipment, one person can test 50 chemicals per day for herbicidal action. Commercial tests now take several days for each chemical, he said. The souped-up monitor can also measure herbicide penetration.

Okay, we all know about insect sex attractants. And we know some insects give off chemical signals that turn off certain unwanted suitors. But now scientists are using these facts to develop additional alternatives to pesticides for insect pest control. Control strategies are possible in two directions — attractions and inhibition or disruption. First of all, the synthetic pheromone may be used to attract insects to a bait laced with small amounts of pesticides in a trap. Another is using the attractant to confuse — an area permeated with the pheromone so males cannot tell exactly where females are. These studies and others will determine the effectiveness of male trapping in population suppression and will be used to evaluate the effect of migration and other factors in any future control program.

Now here's a mower.

This 9-gang giant will take on the biggest mowing job you have and breeze right through it.

Grady Hassell can tell you about it. He's with Lawn & Turf, Inc. in Conyers, Georgia.

As a Jacobsen Distributor he has all the answers about Jacobsen equipment. Like the huge F20 9-gang mower.

He'll tell you that it cuts a wide 19-foot swath. It has a gargantuan appetite that can cut through 76 acres in one work day. And that's mowing at a realistic pace.

But it's easily tamed for more delicate chores because the operator can raise and lower any of the reels with a fingertip control. Things like median strips can be mowed from the road shoulder with the outboard reels, for example.

Just because it's big doesn't mean it's clumsy. Far from it.

There's a ground-gripping front drive that gives sure traction on grades and sidehills.

And the rear wheel steering means that the reels turn in the same arc as the steering wheels. No skidding, no skipping, no uneven cutting in the turns. And no wheel streaks in the straightaways, either.

If you have big mowing chores ahead of you, ask your Jacobsen Distributor about how the mighty F20 can help you. An actual demonstration ought to raise your eyebrows a couple of notches.

And you might even find yourself saying, "Now here's a mower."

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Before we sell it, we buy it.

For the name of the distributor near you write: Jacobsen Turf Distributor Directory, 1721 Packard Avenue, Racine, Wisconsin 53403.

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Chewings Fescue

Researchers have long looked for a fine-leafed fescue that has the color and adaptability of modern bluegrasses and that will look well in a seed mixture. Jamestown, a low-growing new variety of chewings fescue, developed at the University of Rhode Island, is the answer for nearly every turf condition required. Jamestown has good disease resistance, shade tolerance, the darkest green color of any fescue on the market and wide adaptation. Jamestown has been thoroughly researched by universities and independent research groups throughout the United States and Canada. But, most importantly, the low growth and brilliant color are the outstanding virtues landscapers, contractors, sodmen and golf course superintendents count on. Jamestown can be used for practically any turf condition.

GENERAL LANDSCAPE...
For home lawn use, institutional, parks...university studies from Winnipeg, Canada to Maryland have consistently rated Jamestown number one in overall quality for the past five years. Jamestown broadens the adaptation of bluegrasses because of shade tolerance and lower fertility requirements.

SOD FARMS...
Jamestown is ideally compatible in persistence and color to the new Kentucky Bluegrasses such as Baron and Majestic. It's natural low and dense growth combined with its deep rich color makes Jamestown the number one fescue for use in the sod industry.

GOLF COURSES...
In the temperate climates Jamestown should be used for seed mixtures on tees, roughs and fairways. While in the Bermuda belt Jamestown is the best fine leafed fescue for fall overseeding greens. A Clemson University study showed that Jamestown is outstanding at a cutting height as low as 1/8 inch.

Remember. . . *Jamestown is particularly useful where turf conditions are less than perfect. It does very well in non-irrigated and somewhat infertile soils where the turf may be subject to adverse conditions on low maintenance budgets.*

Dr. C. Richard Skogley, world renowned turfgrass agronomist and researcher at the University of Rhode Island.

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